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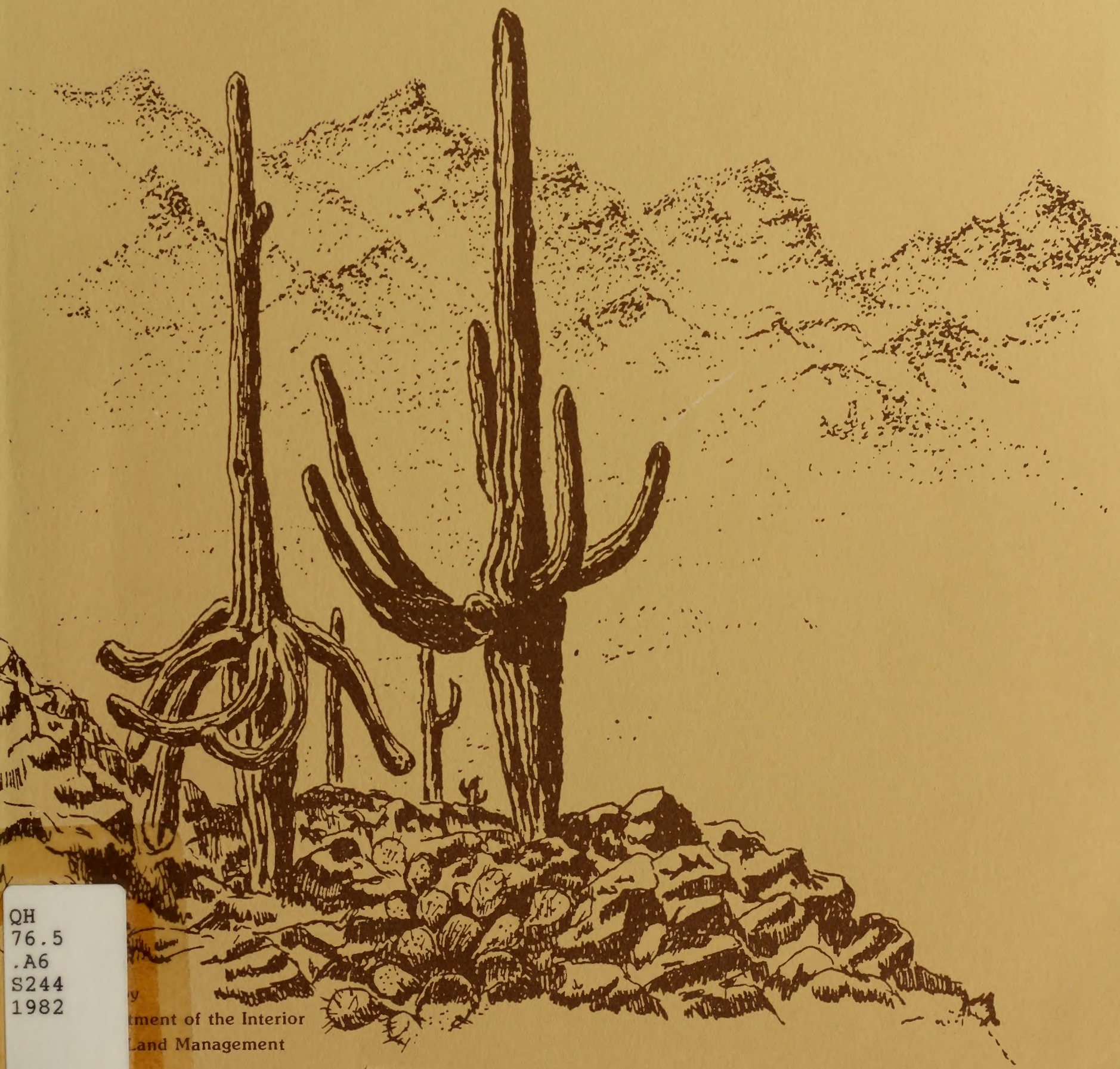
Draft Wilderness Environmental Impact Statement



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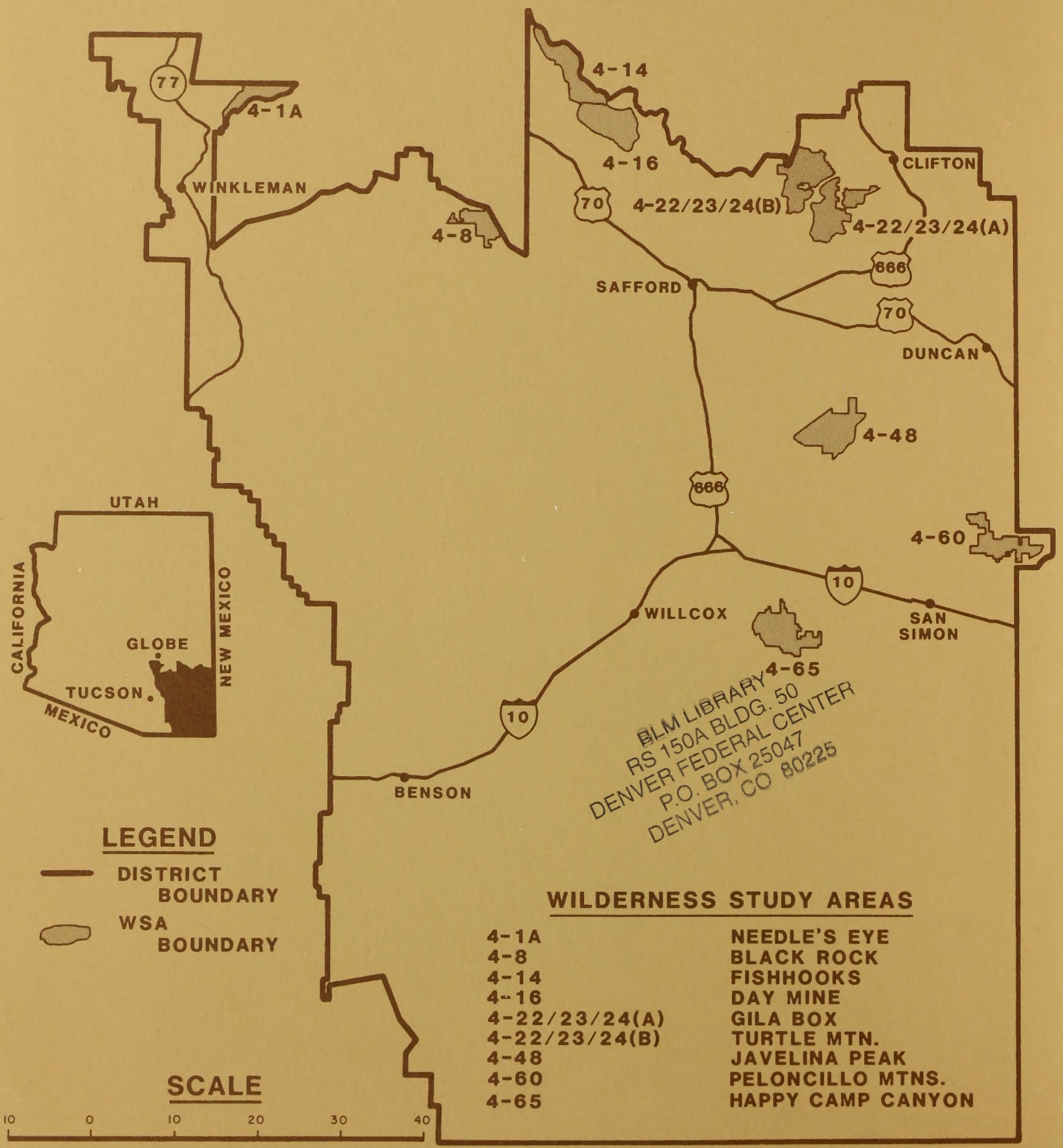
WILDERNESS STUDY AREA LOCATION MAP



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WSA BOUNDARY

WILDERNESS STUDY AREAS

4-1A	NEEDLE'S EYE
4-8	BLACK ROCK
4-14	FISHHOOKS
4-16	DAY MINE
4-22/23/24(A)	GILA BOX
4-22/23/24(B)	TURTLE MTN.
4-48	JAVELINA PEAK
4-60	PELONCILLO MTNS.
4-65	HAPPY CAMP CANYON

SCALE

10 0 10 20 30 40

1 inch equals approximately 16 miles

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United States Department of the Interior

IN REPLY REFER TO
8500

BUREAU OF LAND MANAGEMENT
Safford District
425 E. 4th Street
Safford, Arizona 85546
(602) 428-4040

June 1983

Enclosed for your review and comment is the draft environmental impact statement (EIS) for the wilderness designation of wilderness study areas in the Safford District in Cochise, Gila, Graham, and Greenlee Counties, Arizona and Hidalgo County, New Mexico.

This EIS is based on information from Bureau of Land Management planning documents, inventory results, and input from federal, state, and local agencies, private organizations, and interested individuals. The purpose of the statement is to disclose in advance the probable environmental impacts of the Proposed Action and its alternatives and to assure that these factors are considered in the decisionmaking process.

We would appreciate receiving your comments on the draft statement. The comment period will run for 90 days after the draft is filed with the Environmental Protection Agency. The notice of receipt will be published in the Federal Register on June 3, 1983. Public comments must be received by August 31, 1983. Public hearings will be held on July 18-21, 1983 in Safford, Tucson, and Phoenix, Arizona and Lordsburg, New Mexico. The Safford hearing will be held on July 18 at the Old Armory Meeting Room, 921 Thatcher Boulevard. The Lordsburg hearing will be held on July 19 at the Lordsburg Cultural Center West Meeting Room, 313 E. 4th Street. The Tucson hearing will be held on July 20 at the Pima County Board of Supervisors Hearing Room, 111 W. Congress, 1st Floor. The Phoenix hearing will be held on July 21 at the Hotel Westcourt Ball Room, 10220 N. Metro Parkway East, Metro Center. All hearings will begin at 7:00 p.m.

Comments received after the 90-day review period will be considered in the later decisionmaking process, even though they may not appear in the final environmental impact statement.

Please send your comments to:

District Manager
Bureau of Land Management
425 E. 4th Street
Safford, Arizona 85546

Sincerely,

Lester K. Rosenkrance

Lester K. Rosenkrance
District Manager

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DRAFT

ENVIRONMENTAL IMPACT STATEMENT

PROPOSED WILDERNESS PROGRAM

for the

SAFFORD DISTRICT WILDERNESS EIS AREA

COCHISE, GILA, GRAHAM, AND GREENLEE COUNTIES, ARIZONA

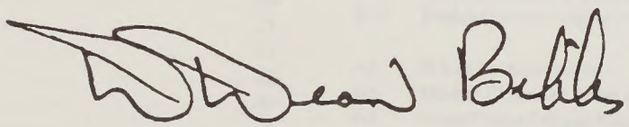
and

HIDALGO COUNTY, NEW MEXICO

Prepared by

DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT
SAFFORD DISTRICT



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State Director

Arizona State Office

This environmental impact statement analyzes the environmental consequences of proposed wilderness designation in southeast Arizona. The Proposed Action recommends 34,881 acres (4 units) to be incorporated into the National Wilderness Preservation System. Alternatives in addition to the Proposed Action include All Wilderness - 131,820 acres(9 units), Enhanced Wilderness - 98,618 acres(9 units), Moderate Wilderness - 45,073 acres (5 units), and No Wilderness (No Action) - no units are recommended for designation. This draft EIS includes a description of the affected environment and an analysis of the environmental impacts of the Proposed Action and alternatives.

For further information contact Steve Knox, EIS Team Leader, Safford District Office, Bureau of Land Management, 425 East 4th Street, Safford, Arizona 85546 or call (602) 428-4040.

Comments on the Draft EIS are due: AUG 31 1983

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NOTICE TO READERS

Please keep this draft EIS for possible use as part of the final EIS. Council on Environmental Quality regulations [43 CFR 1503.4(c)] provide for circulation of abbreviated final EISs where major changes to the draft are not required. If the public review requires only minor changes to the draft, then the final EIS will consist of this draft and a supplement containing public comments, responses to comments, and necessary changes and corrections. This procedure will cut printing costs and speed up the environmental process.

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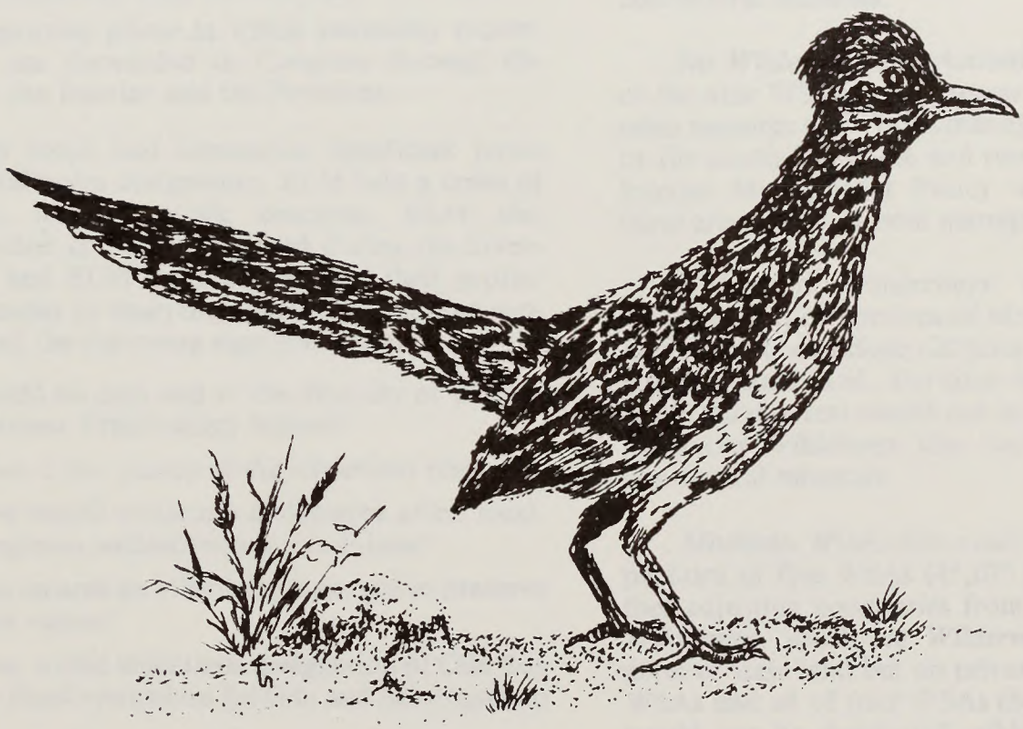
Plate 1 - State of Arizona Wilderness Status Map ..... Pocket Inside Back Cover

SUMMARY



SUMMARY

PURPOSE AND NEED

The Bureau of Land Management (BLM) is under congressional mandate to review roadless areas of 5,000 acres or more on public lands having wilderness character and by 1991 to recommend to the President the suitability of such areas for preservation as wilderness. This environmental impact statement (EIS) assesses the environmental consequences of managing as wilderness nine wilderness study areas in BLM's Safford District. The District lies in Cochise, Gila, Graham, and Greenlee Counties, Arizona and Hidalgo County, New Mexico and includes the Gila and San Simon Resource Areas.

The Safford District wilderness review has involved the following steps:

- an *inventory phase* in which roadless areas were evaluated for size, naturalness, and outstanding opportunities for solitude or primitive recreation;
- a *study phase* in which WSAs suitable for wilderness designation were determined;
- a *reporting phase* in which suitability recommendations are forwarded to Congress through the Secretary of the Interior and the President.

To help scope and summarize significant issues related to wilderness designation, BLM held a series of meetings to identify public concerns. BLM also evaluated public comments received during the inventory phase, and BLM specialists applied their professional judgement in analyzing issues. The scoping process identified the following significant issues.

1. Would an area add to the diversity of the National Wilderness Preservation System?
2. What is the quality of the wilderness resource?
3. How would wilderness designation affect local, state, and regional socioeconomic conditions?
4. Can an area be effectively managed to preserve its wilderness values?
5. How would wilderness designation of Gila Box WSA affect flood control on the Gila and San Francisco Rivers?
6. How would wilderness designation affect potential mineral and energy development?
7. How would wilderness designation affect range management?
8. How would wilderness designation affect wildlife management?
9. How would wilderness designation affect outdoor recreation?
10. How would wilderness designation affect the management of other activities.
11. How would nondesignation of an area affect its wilderness values?

ALTERNATIVES

BLM analyzed the following five alternative as representing a full range of options for wilderness management of the EIS area's nine WSAs. (See Table 2-1 for the WSAs involved in each alternative) BLM selected these alternatives after analyzing public comments, identifying resource conflicts in its planning process, and applying the wilderness criteria.

All Wilderness would designate all nine WSAs (131,820 public land acres), preserving wilderness values but restricting other resource uses that might conflict with wilderness management. *All Wilderness* would enclose 663 acres of private land and 882 acres of state land. This alternative also includes 3,531 acres with non-federal minerals.

No Wilderness (No Action) would designate none of the nine WSAs as wilderness and would not restrict other resource uses. WSA management would be guided by the existing land use and resource plans and BLM's Interim Management Policy until Congress releases these areas from interim management.

Enhanced Wilderness would designate as wilderness all or portions of nine WSAs (98,618 public land acres) and enclose 120 acres of private land and 882 acres of state land. Portions of seven WSAs (33,202 public land acres) would not be designated wilderness. *Enhanced Wilderness* also includes 2,076 acres with non-federal minerals.

Moderate Wilderness would designate as wilderness portions of five WSAs (45,073 public land acres), further adjusting boundaries from those under *Enhanced Wilderness. Moderate Wilderness* would enclose 202 acres of state land but no private land. Portions of five WSAs and all of four WSAs (86,747 public land acres) would not be designated wilderness. This alternative also includes 667 acres with non-federal minerals.

The *Proposed Action* (Preferred Alternative) would designate as wilderness portions of four WSAs (34,881 public land acres), enclosing no private land and only 202 acres of state land. Portions of four WSAs and all of five WSAs (96,939 public land acres) would not be designated wilderness. The *Proposed Action* also includes 667 acres with non-federal minerals.

SUMMARY

ENVIRONMENTAL CONSEQUENCES

BLM based its analysis of environmental consequences on the following assumptions.

1. WSAs will be managed under the Interim Management Policy until Congress determines whether they should be designated wilderness.

2. For WSAs not designated wilderness, BLM will use existing planning documents, consistent with applicable laws and regulations, as the basis for management.

3. In WSAs designated wilderness, BLM's Wilderness Management Policy will be used as the basis for future management.

4. Range, wildlife, and other facilities may be installed and maintained when site-specific environmental assessment shows that wilderness resources will not be impaired.

5. Areas designated wilderness will be managed to meet visual resource management (VRM) Class I objectives, and management considerations will be given to valid existing rights.

6. Livestock grazing will be maintained at present levels unless adjusted for reasons prescribed through range management.

7. Camelsback Dam or any alternative will not be built in or near Gila Box WSA.

8. Any wilderness area designation will occur after December 31, 1983.

9. Any area designated wilderness will be withdrawn from all forms of appropriation under the mining laws as of the date of designation, subject to valid existing rights.

10. BLM may acquire all state or private land inholdings or non-federal minerals within designated wilderness areas through purchase or exchange if the state or private landowners agree to the acquisition. In any event, BLM cannot block access to such inholdings or minerals.

11. BLM will not recommend reclassification of air quality standards for wilderness areas from the existing Class II to the more restrictive Class I.

12. BLM will have adequate funds and personnel to manage areas designated wilderness.

BLM's interdisciplinary team of resource specialists determined that no alternative would measurably impact topography, water, climate, air quality, vegetation, fire management, or noise. Table 2-2 summarizes the impacts of all alternatives.

IMPACTS TO WILDERNESS VALUES

Wilderness designation would preserve wilderness values and special features of all areas designated wilderness, ensuring the protection of natural qualities and roadless character and providing continued opportunities for solitude and primitive recreation. Adding any or all of the WSAs to the National Wilderness Preservation System, however, would only slightly contribute to geographic distribution in Arizona, New Mexico, or the region and would not greatly enhance opportunities for solitude or primitive recreation within a day's drive of Phoenix and Tucson, Arizona or El Paso, Texas. Vegetation diversity within the system would be greatly enhanced by the addition of certain WSAs.

No Wilderness would impair wilderness values in Needle's Eye, Fishhooks, and Turtle Mountain WSAs by allowing the building of ranch roads and facilities. Wilderness values in Gila Box and Happy Camp Canyon WSAs would be impaired by mineral and energy exploration and development.

IMPACTS TO MINERALS AND ENERGY

Designating an area as wilderness would close it to all new claim staking, prospecting, and exploration work under the mining laws. Mining could continue only on those claims located and containing a valid discovery as of the date of wilderness designation. Wilderness designation would thus have a signficant adverse impact on mineral exploration under all alternatives except *No Wilderness* and would have a significant impact on energy exploration under *All Wilderness. All Wilderness* would probably have adverse impacts on mineral and energy development. *Enhanced Wilderness, Moderate Wilderness,* and *Proposed* Action would possibly have adverse impacts on energy exploration and development.

IMPACTS TO LIVESTOCK GRAZING

Wilderness designation would have a low overall adverse impact on livestock management in Needle's Eye, Black Rock, Fishhooks, and Day Mine WSAs, and would have no impact on the other WSAs. Some livestock projects may be acceptable as proposed, some may need mitigation to meet wilderness objectives, and some would not be permitted. Overall, however, grazing management plans would be implemented without impairing wilderness values or affecting the number of livestock proposed for grazing.

SUMMARY

IMPACTS TO RECREATION

Opportunities for primitive and unconfined recreation — hiking, backpacking, sightseeing, rock scrambling, environmental study — would be preserved and enhanced in all WSAs desiganted wilderness. Recreation dependent on motorized vehicles or equipment, however, would not be permitted, ending off-road vehicle use on vehicle ways, the Gila and San Francisco Rivers, and the dunes of Javelina Peak WSA.

IMPACTS TO LAND USE

Wilderness designation would have a slight adverse impact on land use by restricting access to private and state inholdings and non-federal minerals to the combination of routes and modes of travel having the least lasting impact on wilderness values while serving the reasonable purposes for which the state or private land is held.

IMPACTS TO WILDLIFE

Wilderness designation would generally benefit wildlife, wildlife habitat, and federal and state protected species by lessening human disturbance of individual species and habitats. By prohibiting the use of motorized vehicles in the Gila and San Francisco Rivers, however, designation would have a moderate adverse impact by increasing the difficulty and slowing the pace of planting native broadleaf riparian trees.

IMPACTS TO THREATENED AND ENDANGERED PLANTS

Wilderness designation would benefit threatened and endangered plants in the following ways: 1) by providing an additional measure of protection to five candidate threatened and endangered plant species in Needle's Eye, Black Rock, and Happy Camp Canyon WSAs; 2) by restricting or prohibiting surface disturbances that could remove species and alter habitats; and 3) by permitting natural ecological processes to continue with little or no interference from human activities.

IMPACTS TO CULTURAL RESOURCES

Wilderness designation would generally benefit cultural resources by restricting or prohibiting surface disturbances. *All Wilderness* and *Enhanced Wilderness* would protect 56 known sites, 23 of National Register quality. *Moderate Wilderness* would protect 38 known sites, 17 of National Register quality. The *Proposed Action* would protect 22 known sites, 13 of National Register quality. On the other hand, increased visitation, which often accompanies wilderness designation, could impair cultural resources by increasing surface collecting of artifacts.

IMPACTS TO PALEONTOLOGICAL RESOURCES

Designation would generally protect fossils in Javelina Peak and Needle's Eye WSAs by restricting or prohibiting surface disturbance.

IMPACTS TO VISUAL RESOURCES

All areas designated wilderness would receive a VRM Class I designation, which would protect scenery by restricting or prohibiting activities that might impact the landscape.

IMPACTS TO ECONOMIC CONDITIONS

Wilderness designation could restrict or preclude several activities that would impact economic conditions. *All Wilderness* would cause an $1,800 decline in ranch earnings and a $45,000 loss in ranch values as well as a $75,000 loss in spending attributable to ORV use in Gila Box WSA. *Enhanced Wilderness* and *Moderate Wilderness* would cause a $37,500 loss in revenues from ORV use. A money value cannot be placed on the consequences of a ban on mining, but the loss of mineral resources could have a significant effect on local and county employment, industry income, and tax base.

IMPACT TO SOCIAL ELEMENTS

Although most county and local residents oppose more wilderness, any wilderness designation would have insignificant impacts on public attitudes toward wilderness and BLM.

MITIGATING MEASURES

BLM's Wilderness Management Policy provides direction to mitigate the impacts of wilderness designation on the following activities: access to state or private lands, valid mining claims and the existing private rights that accompany such claims, and the

SUMMARY

maintenance of existing livestock facilities. Many of these potential conflicts have been resolved through the wilderness study and environmental assessment processes, but some conflicts could remain. Specific management actions dealing with these conflicts will be addressed in wilderness management plans developed for each designated wilderness area.

Specific laws and regulations require BLM to protect threatened and endangered plants and animals and cultural and visual resources. BLM is also required to manage the public lands to prevent unnecessary resource degradation. In the event of nondesignation, BLM can use the following management tools to protect and preserve wilderness values:

- wild and scenic river designation
- research natural area designation
- outstanding natural area designation
- area of critical environmental concern designation
- off-road vehicle designation
- planning for recreation and visual resources.

List of Preparers

Name	Position	Education	Experience	Area of Responsibility
Al Alvarez	Fire Management Officer	B.S. Animal Science, University of Arizona	7 yrs. BLM	Fire Management
Bill Brandau	Supervisory Range Conservationist	B.S. Recreation and Parks, M.S. Range Management, Texas A&M University	6½ yrs. BLM	Livestock Management
Jerry Coolidge	Community Planner	B.S. & M.S. Botany, University of Idaho	12 yrs. BLM	Socioeconomic Analysis, Environmental Coordination
Olga Diaz	Clerk-Typist	2½ yrs. college	6 yrs. BLM	Clerical
Clarence Hougland	Realty Specialist	B.S. Recreation/Land Management, Northern Arizona University	10 yrs. BLM	Lands/Realty
Larry Humphrey	Natural Resource Specialist	B.S. Animal Science and Soil Science, University of Arizona	8½ yrs. BLM 3 yrs. Soil Conservation Service	Vegetation, Threatened and Endangered Plants
Lou Jurs	Wilderness Coordinator, Arizona State Office	B.S. Wildlife, M.S. Ecology, University of Nevada, Reno	16 yrs. BLM 1 yr. Forest Service	Wilderness Coordination
Gay Kinkade	Archaeologist	B.S. History, Fort Lewis College, CO.; M.A. Anthropology, Eastern New Mexico University	7½ yrs. BLM	Cultural Resources, Paleontology
Steve Knox	Outdoor Recreation Planner	B.S. Watershed Management, University of Arizona	7 yrs. BLM	Team Leader
Ron Loomis	Mining Engineer	B.S. Mining Engineering, University of Arizona	7 yrs. BLM	Energy/Minerals
Judy McDonald	Lead Cartographic Technician, Arizona State Office	2½ yrs. University of Maryland, International Institute of Interior Design	4½ yrs. BLM 4½ yrs. Dept. of Defense	Map Preparation
Herbert K. McGinty	Writer-Editor, Arizona State Office	B.A. History, Duke University; M.A. Geography, Clark University, MA.	6½ yrs. BLM 3½ yrs. U.S. Geological Survey	Editorial/Printing
Ted McRae	Supervisory Range Conservationist	B.S. Range Management, University of Arizona	10 yrs. BLM 2 yrs. Forest Service	Livestock Management
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Delbert Molitor	Hydrologist	B.S. Range/Watershed, Utah State University	5 yrs. BLM	Air/Water Resources
Bob Parker	Wildlife Biologist	B.S. Wildlife Management, Humboldt State University, CA.	5½ yrs. BLM	Wildlife
Keith Pearson	Sociologist, Arizona State Office	B.A. History, Augustana College, IL.; M.A. Anthropology, University of Arizona; Ph.D. Social Anthropology, University of Arizona	6 yrs. BLM 7 yrs. teaching in Arizona universities	Social Elements
Sandy Phillips	Mail/File Clerk	A.A.S., Eastern Arizona College	4 yrs. BLM	Filing/Information Dissemination
Shari Rodriguez	Clerk-Typist	High School	2 yrs. BLM	Clerical
Mike Rucks	Wildife Biologist	B.S. Zoology, University of California, Berkeley; M.A. Physical Anthropology, Pennsylvania State University	4½ yrs. BLM	Wildlife
Jack Sept	Public Affairs Officer	B.A. History/Science/Art, University of Montana	7 yrs. BLM 6 yrs. teaching	Public Affairs
Stan Wagner	Environmental Coordinator, Arizona State Office	B.S. Forest Management, State University of New York	25 yrs. BLM 2 yrs. forest research	Environmental Coordination
Marvin Weiss	Regional Economist Arizona State Office	B.S. Agronomy, University of Wyoming; Graduate work, Economics, University of Wyoming and University of Colorado	7 yrs. BLM 18 yrs. Bureau of Reclamation	Economics
Pete Zwaneveld	Outdoor Recreation Planner	B.S. Outdoor Recreation, Utah State University	4½ yrs. BLM ½ yr. National Park Service	Recreation/Visual Resources/ Wilderness

ABBREVIATIONS

The following abbreviations are used in this EIS. Most of the abbreviations representing terms are defined in the glossary.

ACEC	area of critical environmental concern
ADMR	Arizona Department of Mineral Resources
AG&FD	Arizona Game and Fish Department
AMP	allotment management plan
AUM	animal unit month
BLM	Bureau of Land Management
EA	environmental assessment
EIS	environmental impact statement
FS	Forest Service
FWS	Fish and Wildlife Service
HMP	habitat management plan
IMP	Interim Management Policy
kv	kilovolt
MFP	management framework plan
MSA	management situation analysis
NPS	National Park Service
NRQ	National Register quality
NWPS	National Wilderness Preservation System
ONA	outstanding natural area
ORV	off-road vehicle
USGS	U.S. Geological Survey
VRM	visual resource management
WSA	wilderness study area

Chapter 1

PURPOSE AND NEED

CHAPTER 1
PURPOSE AND NEED

PURPOSE AND NEED

The Bureau of Land Management (BLM) is under congressional mandate to provide for orderly use and development of the public lands and to preserve the land and its resources from destruction or unneeded injury. The Federal Land Policy and Mangement Act of 1976 (FLPMA) directs BLM to periodically inventory the public lands, to identify present uses, and to project future uses in land use plans. These plans, management framework plans (MFPs), ensure that public lands are managed on a multiple-use and sustained yield basis and that the quality of natural resources is preserved. Section 603 of FLPMA directs the Secretary of the Interior to review roadless areas of 5,000 acres or more having wilderness characteristics and by 1991 to recommend to the President the suitability of such areas for preservation as wilderness. Within 2 years after receiving a recommendation, the President must send a report to Congress. Congress, however, has no time limit for acting on the President's recommendation. If Congress decides that some or all of the wilderness study areas (WSAs) are to be designated wilderness, BLM will amend the Safford District's MFPs to manage those areas as wilderness.

SETTING

The nine WSAs involved in this environmental impact statement (EIS) lie in the Gila and San Simon Resource Areas of the Safford District in Cochise,Gila, Graham, and Greenlee Counties, Arizona and Hidalgo County, New Mexico (see location map inside front cover). The WSAs are Needle's Eye (AZ-4-1A), Black Rock (AZ-4-8), Fishhooks (AZ-4-14), Day Mine (AZ-4-16), Gila Box (AZ-4-22/23/24(A)), Turtle Mountain (AZ-4-22/23/24(B)), Javelina Peak (AZ-4-48), Peloncillo Mountains (AZ-4-60), and Happy Camp Canyon (AZ-4-65).

Safford/Thatcher, Globe/Miami, and Clifton/Morenci, Arizona are the largest communities near the WSAs. Duncan, Hayden/Winkelman, and Willcox, Arizona and Lordsburg, New Mexico are smaller centers of population. Phoenix and Tucson, Arizona and El Paso, Texas are large metropolitan areas within a 5-hour drive of the EIS area.

WILDERNESS REVIEW PROCESS

To accomplish the mandate of Section 603 of FLPMA, BLM developed a framework for the wilderness review process. This framework involves three phases: inventory, study, and reporting.

The inventory phase began with the identification of all roadless areas. These areas were then evaluated for size, naturalness, and outstanding opportunities for solitude or primitive types of recreation. Areas clearly lacking these required charactertics were eliminated early in the process. The remaining roadless areas were then further evaluated for their wilderness qualities. The inventory concluded with the identification of WSAs.

The purpose of the study phase is to determine those WSAs suitable for wilderness designation. These determinations, made through BLM's land use planning system, considered all resources and uses of the public lands. BLM specialists compared management of each WSA as wilderness with the management of other resources to determine the most appropriate use of the WSAs. The study phase concludes with the completion of this EIS.

The reporting phase consists of forwarding or reporting these suitability recommendations to Congress through the Secretary of the Interior and the President. Mineral surveys, draft and final EISs, public hearing records, and wilderness study reports will accompany the recommendations.

WILDERNESS STUDY (PLANNING) PROCESS

The wilderness study (planning) process includes a number of different steps. The major steps include scoping (issue identification), the management situation analysis (application of criteria), selection of alternatives and preparation of an environmental impact statement (EIS).

SCOPING (ISSUE IDENTIFICATION)

Scoping is the process for determining significant issues related to a proposed action to be addressed in the study. Scoping eliminates from detailed study insignificant issues or issues addressed in earlier environmental reviews.

The scoping process began early in the study phase. BLM held a series of public scoping meetings to identify the public's concerns. Other issues were identified from public comments received during the inventory phase and the application of professional judgement by BLM specialists. The scoping was concluded through a review by an interdisciplinary team and resource managers. Scoping thus reduces the length of the EIS and emphasizes the real alternatives and impacts.

PURPOSE AND NEED

The scoping process for this EIS involved several phases, extending from November 1978 to February 1983:

- Initial wilderness inventory — November 1978 to April 1979.
- Public comment period — April 1979 to June 1979.
- Intensive wilderness inventory — July 1979 to May 1980.
- Public comment period — May 1980 to July 1980.
- Wilderness inventory decisions — November 1980.
- Wilderness study and planning process — November 1981 to February 1983.
- Scoping workshops — December 1981.
- Meeting with Safford District Advisory Council — December 1981.
- Public comment period on preliminary issues and criteria — December 1981 to January 1982.
- Public comment period on preliminary alternatives and EIS issues — June 1982 to July 1982.
- Federal Register Notice of Intent to prepare an EIS — August 1982.
- Meetings with San Carlos Indian Reservation Tribal leaders — August and September 1982.
- Meeting with Bureau of Indian Affairs — September 1982.
- Meetings with interested energy and minerals groups — December 1981 to December 1982.

RESULTS OF SCOPING

In preparing this draft EIS, the interdisciplinary team and resource managers considered the major areas of public interest and concern identified through scoping. The team used the scoping process to determine which concerns would be significantly impacted by the *Proposed Action* or alternatives. The scoping process identified the following significant issues.

1. Would an area add to the diversity of the National Wilderness Preservation System?

2. What is the quality of the wilderness resource?

3. How would wilderness designation affect local, state, and regional socioeconomic conditions?

4. Can an area be effectively manged to preserve its wilderness values?

5. How would wilderness designation of the Gila Box WSA affect flood control on the Gila and San Francisco Rivers?

6. How would wilderness designation affect potential mineral and energy developments?

7. How would wilderness designation affect range management?

8. How would wilderness designation affect wildlife management?

9. How would wilderness designation affect outdoor recreation?

10. How would wilderness designation affect the management of other activities?

11. How would nondesignation of an area affect its wilderness values?

The scoping process identified the following resources that would not be significantly impacted by the *Proposed Action* or the alternatives anlayzed in the EIS: topography, noise, air quality, climate, water, vegetation, and fire management. All of the above are discussed in Chapter 3 (Affected Environment)to help the reviewer understand the EIS area and its environment.

MANAGEMENT SITUATION ANALYSES (APPLICATION OF CRITERIA)

Because the Safford District's management framework plans (MFPs) do not include the wilderness resource, BLM prepared a management situation analysis (MSA) for each WSA. These MSAs describe the physical, social, and economic setting, discuss existing resource management, and evaluate the effects of a wilderness designation on all other resources and uses in each WSA. From the MSAs, BLM developed a set of wilderness management alternatives for each WSA. The completed MSAs will be the amending documents that incorporate the wilderness resource into the MFPs.

The Wilderness Study Policy directs BLM to apply the following criteria and quality standards to each WSA. They were used to determine whether an area is more suitable for wilderness for other uses.

Criterion No. 1 — Evaluation of Wilderness Values

a. *Mandatory Wilderness Characteristics:* Size, naturalness, and outstanding opportunities for solitude or primitive recreation.

b. *Special Features:* Ecologic, geologic, or other features of scientific, educational, scenic, or historic value.

c. *Multiple Resource Benefits:* Benefits to other resources and uses that only wilderness designation can ensure.

d. Diversity in the National Wilderness Preservation System (NWPS):

(1) Expanding the diversity of natural systems. The Bailey-Kuchler system (Kuchler and Bailey, 1978) was used to display potential natural vegetation diversity in the NWPS and the WSAs.

(2) Assessing the opportunities for solitude or primitive recreation within 5 hours driving time of major population centers.

(3) Balancing the geographic distribution of wilderness areas.

Criterion No. 2 — Manageability

The area must be capable of being effectively managed to preserve its wilderness character. From its knowledge of the resources and their uses in the area, BLM must be reasonably certain that the area can be managed as wilderness over the long run.

Standard No. 1 — Energy and Mineral Resources

The impact of wilderness designation on the exploration and development of energy and mineral resources in the WSAs.

Standard No. 2 — Impacts on Other Resources

The extent to which other resources or uses of the WSA would be foregone or adversely affected by wilderness designation.

Standard No. 3 — Impacts of Nondesignation on Wilderness Values

The extent to which wilderness values of the WSA or a part of the WSA would be foregone or adversely affected by nondesignation.

Standard No. 4 — Public Comment

The comments received from interested and affected groups and individuals at the local, state, regional, and national levels.

Standard No. 5 — Local Social and Economic Effects

The adverse or beneficial social and economic impacts of wilderness designation.

Standard No. 6 — Consistency with Other Plans

The extent to which a wilderness designation conforms with officially approved and adopted resource-related plans of state and local governments and Indian tribes.

ALTERNATIVES DEVELOPED

The interdisciplinary team developed the following alternatives after analyzing public comments, identifying resource conflicts in the planning process, and applying the wilderness criteria.

1. *All Wilderness* — nine WSAs, 131,820 acres of public land.
2. *Enhanced Wilderness* — nine WSAs, 98,618 acres of public land.
3. *Moderate Wilderness* — five WSAs, 45,073 acres of public land.
4. *Proposed Action* — four WSAs, 34,881 acres of public land.
5. *No Wilderness (No Action)* — No wilderness areas recommended.

These alternatives provide BLM managers a wide range of options from which they can develop wilderness recommendations. They are based on the wilderness management recommendations developed for each WSA during the planning process. The *No Wilderness* and *All Wilderness* alternatives are required by the BLM Wilderness Study Policy.

ENVIRONMENTAL IMPACT STATEMENT

The purpose of this environmental impact statement (EIS) is to assess the environmental consequences of managing wilderness study areas (WSAs) as designated wilderness. Although it considers the impacts of nondesignation, it does not consider how the WSAs will be managed if they are not designated wilderness, since nonwilderness land use decisions are already detailed in the MFPs. WSAs designated wilderness will be managed in accordance with the Wilderness Management Policy (BLM, 1981a).

During the preparation of this EIS, an interdisciplinary team of resource specialists analyzed the environmental consequences of the recommendations for wilderness and compared them to the environmental consequences of reasonable alternatives. This draft EIS documents the analysis and comparisons.

After BLM receives public comments on the draft EIS, it will analyze and respond to them in the final EIS. The preliminary final EIS and wilderness study report will be forwarded to BLM's Washington Office and the Department of the Interior for review and approval to print. The final EIS will then be filed with the Environmental Protection Agency and distributed to the public.

The development of this EIS was guided by the National Environmental Policy Act and implementing regulations, the BLM planning regulations (43 CFR 1600), and BLM's Wilderness Study Policy (BLM, 1982b).

Chapter 2

ALTERNATIVES

CHAPTER 2
ALTERNATIVES INCLUDING THE PROPOSED ACTION

INTRODUCTION

This EIS analyzes five alternatives, including the *Proposed Action.* Chapter 2 describes each of these alternatives and discusses management under a wilderness designation. The maps in the back of this EIS can be folded out and used while reading these descriptions. Table 2-1 shows the acres that would be designated wilderness and the inholdings under each alternative. To provide the public and decisionmaker with a convenient tool for comparing impacts and reaching conclusions, Chapter 2 ends with a summary of the impacts of the alternatives (Table 2-2).

TABLE 2-1
WSA ACRES BY ALTERNATIVE

WSA	Public Acres		Inholdings		Non-Federal Minerals
	Desig-nated	Nondesig-nated	Private	State	
ALL WILDERNESS					
Needle's Eye	9,485	0	0	0	0
Black Rock	8,492	0	0	0	545
Fishhooks	15,013	0	0	202	0
Day Mine	16,629	0	0	40	0
Gila Box	17,831	0	80	0	0
Turtle Mountain	17,422	0	285	640	0
Javelina Peak	17,870	0	40	0	1,650
Peloncillo Mtns.	12,317	0	0	0	760
Happy Camp Canyon	16,761	0	25B	0	576
Total	131,820	0	663	882	3,531
ENHANCED WILDERNESS					
Needle's Eye	9,485	0	0	0	0
Black Rock	7,614	878	0	0	545
Fishhooks	15,013	0	0	202	0
Day Mine	11,870	4,759	0	40	0
Gila Box	15,272	2,559	80	0	0
Turtle Mountain	9,104	8,318	0	640	0
Javelina Peak	7,035	10,835	0	0	195
Peloncillo Mtns.	10,418	1,899	0	0	760
Happy Camp Canyon	12,807	3,954	40	0	576
Total	98,618	33,202	120	882	2,076
MODERATE WILDERNESS					
Needle's Eye	8,970	515	0	0	0
Black Rock	6,590	1,902	0	0	545
Fishhooks	10,0B3	4,930	0	202	0
Day Mine	0	16,629	0	0	0
Gila Box	10,192	7,639	0	0	0
Turtle Mountain	0	17,422	0	0	0
Javelina Peak	0	17,B70	0	0	0
Peloncillo Mtns.	0	12,317	0	0	0
Happy Camp Canyon	9,238	7,523	0	0	122
Total	45,073	86,747	0	202	667
PROPOSED ACTION					
Needle's Eye	B,970	515	0	0	0
Black Rock	6,590	1,902	0	0	545
Fishhooks	10,083	4,930	0	202	0
Day Mine	0	16,629	0	0	0
Gila Box	0	17,831	0	0	0
Turtle Mountain	0	17,422	0	0	0
Javelina Peak	0	17,870	0	0	0
Peloncillo Mtns.	0	12,317	0	0	0
Happy Camp Canyon	9,238	7,523	0	0	122
Total	34,B81	96,939	0	202	677
NO WILDERNESS					
Needle's Eye	0	9,485	0	0	0
Black Rock	0	8,492	0	0	0
Fishhooks	0	15,013	0	0	0
Day Mine	0	16,629	0	0	0
Gila Box	0	17,831	0	0	0
Turtle Mountain	0	17,422	0	0	0
Javelina Peak	0	17,870	0	0	0
Peloncillo Mtns.	0	12,317	0	0	0
Happy Camp Canyon	0	16,761	0	0	0
Total	0	131,820	0	0	0

FORMULATION OF ALTERNATIVES

In response to known issues and resource conflicts, BLM began developing alternatives for each WSA early in the preparation of the management situation analyses (MSAs). As the MSAs were completed, BLM developed other alternatives dealing with other resource conflicts, more manageable and definable boundaries, and the quality of wilderness values. In June 1982, these alter natives were presented to the public for comment. These public comments and the re-evaluations of the interdisciplinary team resulted in minor boundary changes under some of the alternatives.

The alternatives developed for each WSA were combined into an array of five alternatives to be addressed in this EIS: *All Wilderness, No Wilderness* (No Action), and three partial wilderness alternatives: *Enhanced Wilderness, Moderate Wilderness,* and the *Proposed Action.* These three partial wilderness alternatives recommend wilderness designation for a range of acreage totals between those of *All Wilderness* and *No Wilderness.* This array of alternatives was developed to give the public and BLM managers a wide range of recommendation options. The *No Wilderness* alternative was included to meet National Environmental Policy Act (NEPA) requirements.

The partial wilderness alternatives are just three of the possible alternatives that could have been developed. These alternatives, however, provide a full range of options as required by NEPA and also address the issues raised by the public.

DESCRIPTION OF THE ALTERNATIVES

This section describes each of the five alternatives and includes information on the private and state inholdings in six of the WSAs and non-federal minerals in four of the WSAs (see Table 2-1). Some inholdings and non-federal minerals would remain under all alternatives except *No Wilderness*. No inholdings or non-federal minerals are recommended for acquisition but possible problems would be eliminated if BLM acquires the inholdings and non-federal minerals through purchase from willing sellers or through exchanges for other public lands.

ALL WILDERNESS

All Wilderness would designate as wilderness all nine WSAs, totaling 131,820 acres. It would preserve wilderness values in all WSAs but would restrict other resource uses that might conflict with wilderness

management. *All Wilderness* would enclose 663 acres of private land and 882 acres of state land. This alternative also includes 3,531 acres with non-federal minerals.

NO WILDERNESS (NO ACTION)

No Wilderness would designate none of the nine WSAs as wilderness and would not restrict other resource uses. WSA management would be guided by management framework plans and the Interim Management Policy until Congress releases these areas from interim management.

ENHANCED WILDERNESS

Enhanced Wilderness would designate as wilderness all or portions of nine WSAs, totaling 98,618 acres. Similar to *All Wilderness* but involving less area, *Enhanced Wilderness* would enclose 120 acres of private land and 882 acres of state land. Portions of seven WSAs, totaling 33,202 acres, would not be designated under *Enhanced Wilderness*. This alternative also includes 2,076 acres with non-federal minerals.

MODERATE WILDERNESS

Moderate Wilderness would designate as wilderness portions of five WSAs, totaling 45,073 acres, further adjusting boundaries from those under *Enhanced Wilderness*. Wilderness areas under *Moderate Wilderness* would have no private inholdings but would enclose 202 acres of state land. Portions of five WSAs and all of four WSAs, totaling 86,747 acres, would not be designated under *Moderate Wilderness*. This alternative also includes 667 acres with non-federal minerals.

PROPOSED ACTION (PREFERRED ALTERNATIVE)

The *Proposed Action* would designate as wilderness portions of four WSAs, totaling 34,881 acres. The *Proposed Action* would enclose 202 acres of state land but no private land. Portions of four WSAs and all of five WSAs, totaling 96,939 acres, would not be designated. The *Proposed Action* also includes 667 acres with non-federal minerals.

WSA DESCRIPTION BY ALTERNATIVE

This section discusses each of the nine WSAs by alternative. The *No Wilderness* alternative is not discussed for any WSA because it would not involve change from the management before the implementation of interim management.

NEEDLE'S EYE, AZ-4-1A (MAP 1)

All Wilderness and Enhanced Wilderness. *All Wilderness* and *Enhanced Wilderness* would designate as wilderness all 9,485 acres of Needle's Eye WSA.

Moderate Wilderness and Proposed Action. *Moderate Wilderness* and the *Proposed Action* would designate 8,970 acres as wilderness but not designate 515 acres. The WSA's western boundary has been changed to follow ridgelines, and the eastern boundary has been changed to follow a vehicle way. The area designated wilderness under these alternatives is more manageable than that under *All Wilderness* and *Enhanced Wilderness* because its boundaries are more easily defined. Manageability would be further enhanced by excluding a vehicle way that impairs naturalness and could potentially conflict with wilderness.

BLACK ROCK, AZ-4-8 (MAP 2)

Any recommendation for wilderness would be made only if the adjacent Forest Service roadless area is designated wilderness as proposed by that agency. The combination of the foothills of Black Rock WSA and the mountains of the Forest Service roadless area provides outstanding wilderness values in the Santa Teresa Mountains. By itself, Black Rock WSA contains the basic wilderness characteristics but they are of lower value.

All Wilderness. *All Wilderness* would designate as wilderness 8,492 acres of Black Rock WSA, including 545 acres with non-federal minerals.

Enhanced Wilderness. *Enhanced Wilderness* would designate as wilderness 7,614 acres of Black Rock WSA, including 545 acres with non-federal minerals, but would not designate 878 acres in the northeastern part of the WSA because of mineral conflicts. The wilderness boundary follows ridgelines running north and east from the summit of Jackson Mountain.

Moderate Wilderness and Proposed Action. *Moderate Wilderness* and the *Proposed Action* would designate 6,590 acres of wilderness, including 545 acres with non-federal minerals, but not designate 1,902 acres of the WSA. These alternatives are similar to *Enhanced Wilderness* but would not designate two more areas in the WSA's southeast. The boundaries, following ridgelines, would provide for a more manageable wilderness area.

FISHHOOKS, AZ-4-14 (MAP 3)

All Wilderness and Enhanced Wilderness. These alternatives would designate as wilderness all 15,013 acres of Fishhooks WSA and enclose 202 acres of state land.

Moderate Wilderness and Proposed Action. *Moderate Wilderness* and the *Proposed Action* would designate 10,083 acres as wilderness, enclose 202 acres of state land, and not designate 4,930 acres of the WSA with lower wilderness values. The nondesignated area has a cherrystem road, vehicle ways, several range improvements, and mining claims. The southeastern boundary under these alternatives would follow the bottom of Dutch Pasture Canyon.

DAY MINE, AZ-4-16 (MAP 4)

All Wilderness. *All Wilderness* would designate as wilderness all 16,629 acres of Day Mine WSA, enclosing 40 acres of state land and nearly enclosing a further 640 acres of state land that can be accessed by an existing cherrystem road.

Enhanced Wilderness. *Enhanced Wilderness* would designate 11,870 acres of Day Mine WSA as wilderness, enclose 40 acres of state land, and not designate 4,759 acres on the WSA's northern, western, and southern sides. The nondesignated area has most of the vehicle ways, cherrystem roads, and areas with lower wilderness values. The designated area would be more manageable than the WSA as a whole and has more definable boundaries, which follow landforms.

Moderate Wilderness and Proposed Action. *Moderate Wilderness* and the *Proposed Action* would not designate as wilderness any of Day Mine WSA's 16,629 acres. Though this WSA meets the basic wilderness criteria, it would not be designated because of low wilderness values and the presence of similar but higher wilderness values in nearby Fishhooks WSA.

GILA BOX, AZ-4-22/23/24(A) (MAP 5)

All Wilderness. *All Wilderness* would designate all 17,831 acres of the Gila Box WSA as wilderness and enclose 80 acres of private land.

Enhanced Wilderness. *Enhanced Wilderness* would designate 15,272 acres as wilderness, enclose 80 acres of private land, and not designate 2,559 acres on the WSA's eastern end. The nondesignated area contains geothermal energy potential, and areas with lower wilderness values caused by a cherrystem road and off-road vehicle (ORV) use in the canyon bottoms. The boundaries follow landforms.

Moderate Wilderness. Creating a manageable wilderness surrounding the Camelsback area, *Moderate Wilderness* would designate 10,192 acres as wilderness but not designate 7,639 acres. The nondesignated areas, in the WSA's northern and eastern portions, contain a private inholding, geothermal energy potential and land with lower wilderness values caused by a cherrystem road, and ORV use in the canyon bottoms. Under *Moderate Wilderness* the WSA boundaries would be changed to follow ridgelines and a section line.

Proposed Action. The *Proposed Action* would not designate as wilderness the Gila Box WSA's 17,831 acres becuase of conflicts with ORV use in the canyon bottoms.

TURTLE MOUNTAIN, AZ-4-22/23/24(B) (MAP 6)

All Wilderness. *All Wilderness* would designate all 17,422 acres of Turtle Mountain WSA as wilderness. It would enclose 285 acres of private land and 640 acres of state land and nearly enclose another 960 acres of state land now accessed by cherrystem roads.

Enhanced Wilderness. *Enhanced Wilderness* would designate 9,104 acres of this WSA as wilderness, enclose 640 acres of state land, and not designate the remaining 8,318 acres surrounding the WSA's core. The nondesignated areas contain all the WSA's private inholdings, areas with potential geothermal energy conflicts, some range improvements, and areas with lower wilderness values. *Enhanced Wilderness* would create more definable wilderness boundaries and eliminate most of the problems of access to inholdings. The eastern boundary of the proposed wilderness area would follow section lines, and the remaining boundaries would follow ridgelines.

Moderate Wilderness and Proposed Action. *Moderate Wilderness* and the *Proposed Action* would not designate as wilderness 17,422 acres of Turtle Mountain WSA because of low wilderness values, problems of manageability caused by inholdings and access to them, and conflicts with implementing a grazing system.

JAVELINA PEAK, AZ-4-48 (MAP 7)

All Wilderness. *All Wilderness* would designate as wilderness all 17,870 acres of Javelina Peak WSA, including 1,650 acres with non-federal minerals, and enclose 40 acres of private land.

Enhanced Wilderness. *Enhanced Wilderness* would designate 7,035 acres as wilderness, including 195 acres with non-federal minerals, focusing on the Whitlock Mountains and providing for a more manageable area. It would not designate 10,835 acres of the WSA, which contain a private inholding and lands with lower wilderness values caused by a cherrystem road, several ways, and ORV use. The boundaries follow section lines.

Moderate Wilderness and Proposed Action. *Moderate Wilderness* and the *Proposed Action* would not designate as wilderness any of Javelina Peak WSA's 17,870 acres because of low wilderness values and conflicts with ORV use.

ALTERNATIVES

PELONCILLO MOUNTAINS, AZ-4-60 (MAP 8)

All Wilderness. *All Wilderness* would designate as wilderness all 12,317 acres of Peloncillo Mountains WSA, including 760 acres with non-federal minerals.

Enhanced Wilderness. *Enhanced Wilderness* would designate 10,418 acres — the WSA's most natural part — as wilderness, including 760 acres with non-federal minerals. It would not designate 1,899 acres on the WSA's southern and southeast side whose wilderness quality has been reduced by the presence of range improvements and nearby roads. The boundaries follow landforms.

Moderate Wilderness and Proposed Action. *Moderate Wilderness* and the *Proposed Action* would not designate as wilderness any of the 12,317 acres of the Peloncillo Mountains WSA because of management problems caused by highly irregular boundaries.

HAPPY CAMP CANYON, AZ-4-65 (MAP 9)

All Wilderness. *All wilderness* would designate all 16,761 acres of Happy Camp Canyon WSA as wilderness, including 576 acres with non-federal minerals, and enclose 258 acres of private land.

Enhanced Wilderness. *Enhanced Wilderness* would designate as wilderness 12,807 acres of this WSA, including 576 acres with non-federal minerals, enclose 40 acres of private land, and not designate 3,954 acres with current mineral exploration and mining and areas with potential mineralization on the southern and western side of the WSA. The boundaries follow section lines.

Moderate Wilderness and Proposed Action. *Moderate Wilderness* and the *Proposed Action* would designate 9,238 acres of Happy Camp Canyon WSA as wilderness, including 122 acres with non-federal minerals, proposing a manageable area that focuses on the Hapy Camp Canyon watershed. The 7,523 nondesignated acres, located all around the WSA, include areas with lower wilderness values and most known mineralized areas.

MANAGEMENT

Until Congress either designates these WSAs as wilderness or releases them from interim management, BLM will manage them under the Interim Management Policy and Guidelines for Lands Under Wilderness Review (IMP) (BLM, 1979a) and the Federal Land Policy and Management Act (FLPMA). The IMP guides BLM in managing lands under wilderness review. BLM also manages the wilderness resource by complying with section 603(c) of FLPMA, which states:

> During the period of review of such areas and until Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this act and other applicable law in a manner so as not to impair the suitability of such areas for preservation as wilderness, subject, however, to the continuation of existing mining and grazing uses and mineral leasing in the manner and degree in which the same was being conducted on the date of approval of this Act (October 21, 1976).

If a WSA is designated by Congress, it will be managed under the Wilderness Act, FLPMA, BLM's Wilderness Management Policy (BLM, 1981a), and any requirements of the law designating the wilderness area. These laws and policies direct BLM to preserve the wilderness character of the area. In dealing with use in wilderness areas, the Wilderness Act states that such areas will be devoted to the public purposes of recreation, scenic, scientific, educational, conservation, and historical use. The Wilderness Act also sets the following limits on use:

> Except as specifically provided for in this Act and subject to existing private rights, there shall be no commerical enterprise and no permanent road within any wilderness area designated by this Act and, except as necessary to meet minimum requirements for the adminstration of the area for the purpose of this Act (including measures required in emergencies involving the health and safety of persons within the area), there shall be no temporary road, no use of motor vehicles, motorized equipment or motorboats, no landing of transport, and no structures or installation within any such area.

The following are other management policies that apply to designated wilderness areas:

- Guide services could be allowed within wilderness areas to serve recreation or other wilderness purposes.
- The Wilderness Act does not affect state water laws or the state responsibilities for wildlife.
- Access to state or privately owned inholdings within wilderness areas will be guaranteed.
- If in the public interest, the President may authorize establishing and maintaining reservoirs, power projects, transmission lines, roads, and other such facilities in wilderness areas.
- Projects existing before wilderness designation can be maintained by traditional methods.
- New projects (not requiring a new road for access) such as stock ponds, spring developments, pipelines, and fences could be allowed after a review of their impacts through an environmental assessment.
- Except on valid existing claims and leases, mining and mineral leasing would be prohibited in wilderness areas after designation.

ALTERNATIVES

TABLE 2-2
SUMMARY OF IMPACTS

Resource	All Wilderness	No Wilderness	Enhanced Wilderness	Moderate Wilderness	Proposed Action
WILDERNESS VALUES	Wilderness designations would preserve wilderness values and special features of all 9 WSAs and add to the diversity of the National Wilderness Preservation System. Some manageability problems would result.	No WSAs would become part of the NWPS. Wilderness values in Needle's Eye, Fishhooks, and Turtle Mountain WSAs would be impaired by the building of ranch roads and facilities. Wilderness values in Gila Box and Happy Camp Canyon WSAs would be impaired by energy and mineral activities.	Same as All Wilderness but affecting all or portions of the 9 WSAs.	Same as All Wilderness but affecting portions of Needle's Eye, Black Rock, Fishhooks, Gila Box, and Happy Camp Canyon WSAs.	Same as All Wilderness but affecting portions of Needle's Eye, Black Rock, Fishhooks, and Happy Camp Canyon WSAs.
Acres Given Wilderness Protection	131,820	0	98,618	45,073	34,881
MINERALS AND ENERGY	Significant adverse impacts to mineral and energy exploration; probable adverse impacts to mineral and energy development.	No impact	Significant adverse impact to mineral exploration; possible adverse impact to mineral development; slight adverse impact to energy exploration and development.	Same as Enhanced Wilderness.	Same as Enhanced Wilderness.
Mining Claims	534	0	147	96	96
Acres Under Oil and Gas Lease	29,140	0	19,540	5,440	5,440
LIVESTOCK GRAZING	Overall low adverse impact on livestock grazing.	No impact	Same as All Wilderness.	Same as All Wilderness.	Same as All Wilderness.
Allotments Involved	31	0	31	15	11
AMPs Affected	7	0	6	4	4
RECREATION					
Off-Road Vehicle Use	ORV use would be banned on vehicle ways in all WSAs, on the Gila and San Francisco Rivers, and on the dunes of Javelina Peak WSA.	No impact	ORV use would be banned on vehicle ways in designated wilderness areas, on the Gila River, and on a small part of the Javelina Peak WSA.	ORV use would be banned on the Gila River and Meacal Creek in Needle's Eye WSA, on Fourmile Canyon way in Black Rock WSA, the Gila River in the Gila Box WSA, and on the ways in Howell and Happy Camp Canyons in Happy Camp Canyon WSA.	Same as Moderate Wilderness except ORV use on Gila River in Gila Box WSA would not be affected.
Miles of Vehicle Ways Closed	44	0	28	17	5
Acres Closed to ORV Use	131,820	0	98,618	45,073	34,881
LAND USE					
Acres of State Inholdings	882	0	882	202	202
Acres of Private Inholdings	663	0	120	0	20
Acres with Non-Federal Minerals	3,531	0	2,076	667	667
WILDLIFE					
Miles of River Along Which Wilderness Designation Would Restrict Attempt to Re-establish Broadleaf Riparian Habitat	15 - Gila 3 - San Francisco	0	11 - Gila	8 - Gila	0
THREATENED AND ENDANGERED PLANTS	More protection would be given to listed and candidate species in Needle's Eye, Black Rock, Javelina Peak, and Happy Camp Canyon WSAs.	No impact	Same as All Wilderness.	Same as All Wilderness except species in Javelina Peak WSA would not receive protection of wilderness designation.	Same as Moderate Wilderness.
CULTURAL RESOURCES					
Sites Protected by Wilderness					
Prehistoric	46	0	46	30	22
Historic	10	0	10	8	0
National Register Quality	23	0	23	17	13
PALEONTOLOGICAL RESOUCES	Fossils would be protected in Javelina Peak and Needle's Eye WSAs.	No impact	Same as All Wilderness.	Fossils would be protected in Needle's Eye WSA.	Same as Moderate Wilderness.
VISUAL RESOURCES					
Acres Changed to VRM Class I Management	66,932	0	43,668	10,378	8,468
Acres Protected by VRM Class I Management	131,820	64,888	108,556	75,266	73,086
ECONOMIC CONDITIONS					
Decline in Spending Due to Decreased ORV Use in Gila Box WSA	$75,000	None	$37,500	$37,500	None
Other Economic Impacts	In Turtle Mountain WSA, annual ranch earnings would decline by $1,800, and ranch values would decline by $125/AUM or $45,000.	None	Same as All Wilderness.	None	None
SOCIAL ELEMENTS	No significant adverse impact on public attitude toward wilderness.	No significant impacts on local and county residents' attitudes toward wilderness.	Same as All Wilderness.	Same as All Wilderness.	No significant adverse impacts on local and county residents' attitudes toward wilderness.

Chapter 3

AFFECTED ENVIRONMENT

CHAPTER 3
AFFECTED ENVIRONMENT

INTRODUCTION

Chapter 3 briefly describes resources that might be impacted by the alternatives including the *Proposed Action*. Descriptions are only as detailed as needed for the reader to understand the effects of implementing the alternatives. Where impacts to resources would be slight or nonexistent, descriptions are brief or are omitted.

More detailed descriptions of the resources in the EIS area and of regional socioeconomic conditions appear in the Safford District planning documents. Copies of these documents may be reviewed in the Safford District Office, Safford, Arizona.

TOPOGRAPHY

The EIS area lies within the Basin and Range physiographic province, just south of the Colorado Plateau. The area's northwesterly trending mountain ranges reach elevations of nearly 8,000 feet and are separated by broad, flat or gently sloping basins. The Gila Mountains and the mountainous area near Clifton represent the transition zone between the Colorado Plateau and the Basin and Range provinces. The WSAs occur in several distinct physiographic units, including the Gila and San Simon Valleys and the Peloncillo, Dos Cabezas, Gila, Santa Teresa, and Mescal Mountains.

WATER

The WSAs contain portions of three perennial streams: Mescal Creek and the Gila and San Francisco Rivers. The entire EIS area is drained by the Gila River except for a small area on the south side of the Dos Cabezas Mountains from which water flows into Willcox Playa. The EIS area is also drained by many intermittent streams, which flow mainly after heavy rains.

CLIMATE

Climatic conditions in the EIS area are similar to those throughout the region. Alternating lowlands and mountains create abrupt climatic changes over short distances. Higher elevations produce cooler temperatures and more precipitation than valley locations. Summer days are hot but usually not oppressive. Average winter temperatures in the higher elevations fall below freezing, and snow is common. Winters in the valleys are relatively mild. Annual precipitation averages 7 to 16 inches in the valleys and 15 to 30 inches in the mountains. Most rainfall occurs in the late summer. Drought is most common from April to June; less severe drought occurs in the fall. Long, severe droughts occur irregularly and usually last 2 to 5 years.

AIR

Air quality over the WSAs is generally good. Ambient air quality over most of the WSAs has been given a Class II rating by the State of Arizona. Portions of three WSAs, however, occur in sulphur dioxide nonattainment areas. The eastern portions of Gila Box and Turtle Mountain WSAs lie within the nonattainment area around the Morenci copper smelter. The southwestern portion of Needle's Eye WSA lies within the nonattainment area for the Hayden-Winkelman copper smelters.

Odors from the Morenci smelter can be noticed in the Gila Box and Turtle Mountain WSAs. Jet exhaust fumes can occassionally be noticed in some of the WSAs after low-level flights.

NOISE

The U.S. Air Force conducts infrequent high- and low-level training flights over much of the EIS area. Although these flights are not prohibited over the WSAs and are brief in duration, low-flying aircraft passages are noisy.

Noise from the Phelps Dodge mining operation at Morenci can be heard from within the Gila Box and Turtle Mountain WSAs.

WILDERNESS VALUES

Characteristics. The Safford District wilderness inventory determined that all the WSAs in the EIS area meet the basic wilderness criteria. All exceed 5,000 acres, appear to be primarily natural, and offer outstanding opportunities for solitude or primitive recreation. Many of the WSAs also contain special features that contribute to their wilderness values.

Wilderness. The geographic distribution of wilderness was evaluated by considering the states of Arizona and New Mexico and a region encompassing parts of both states. The region has Nogales, Arizona on the southwest corner, Flagstaff, Arizona on the northwest corner, Albuquerque, New Mexico on the northeast corner, and El Paso, Texas on the southeast corner. Interstate highways and the international border define the boundaries of this region.

Designated and administratively endorsed wilderness areas are well distributed within Arizona, New Mexico, and the region. Table 3-1 shows the acreage of designated and administratively endorsed wilderness and of areas under study in the two states and the region.

AFFECTED ENVIRONMENT

TABLE 3-1
GEOGRAPHIC DISTRIBUTION OF WILDERNESS AND POTENTIAL WILDERNESS

	BLM		FS		FWS		NPS		Total	
	No.	Acres	No.	Acres	No.	Acres	No.	Acres	No.	Acres
Arizona										
Designated	0		9	552,455	0		4	430,700	13	983,155
Endorsed	1	6,670	15	562,008	4	1,318,710	0		20	1,887,388
Study	131	2,975,330	19	475,058	0		0		150	3,450,388
New Mexico										
Designated	0		16	1,388,815	2	47,356	2	62,000	20	1,498,171
Endorsed	0		0		0		0		0	
Study	49	1,004,343	6	117,306	0		0		55	1,121,649
Region										
Designated	0		13	1,344,033	1	37,735	3	131,000	17	1,512,768
Endorsed	1	6,670	7	351,708	0		0		8	358,378
Study	41	870,635	16	467,356	0		0		57	1,337,991

BLM - Bureau of Land Management; FS - Forest Service; FWS - Fish and Wildlife Service; NPS - National Park Service.

Solitude or Primitive Recreation Opportunities. The EIS area lies within a day's driving time (5 hours) of three standard metropolitan statistical areas (SMSAs) as defined by the Bureau of the Census. The SMSAs are Phoenix and Tucson, Arizona and El Paso, Texas. Several designated and endorsed wilderness areas lie within a day's driving time of all three SMSAs. Table 3-2 gives a breakdown of the number of areas providing solitude or primitive recreation.

TABLE 3-2
AREAS WITH SOLITUDE OR PRIMITIVE RECREATION OPPORTUNITIES*

SMSA	Status	No.	Acres	States	Administering Agency
Phoenix	Designated	16	1,568,545	AZ, CA, NM	FS, NPS
	Endorsed	17	1,043,678	AZ	BLM, FS, FWS
	Study	132	4,332,620	AZ, CA, NM	BLM, FS
Tucson	Designated	15	1,729,585	AZ, NM	FS, NPS
	Endorsed	12	1,188,388	AZ	BLM, FS, FWS
	Study	75	1,922,470	AZ, NM	BLM, FS
El Paso	Designated	14	1,203,254	AZ, NM, TX	FS, FWS, NPS
	Endorsed	7	885,538	AZ	FS
	Study	57	958,858	AZ, NM	BLM, FS

*Within a day's drive of Phoenix, Tucson, and El Paso SMSAs.

Ecosystem Diversity. The interrelationships of vegetation, topography, and wildlife form the basis for evaluating ecosystem diversity. The Bailey-Kuchler vegetation classification system (Kuchler and Bailey, 1978) was used to determine vegetation types. In addition, geographical and ecological associations can be drawn from the information within this classification system. Topography and wildlife are more fully discussed in those sections of this chapter and in the WSA narratives of wilderness values that follow.

The Bailey-Kuchler system uses elevation, rainfall, and temperature to describe potential natural vegetation. All WSAs in the EIS area lie within the Mexican Highlands Shrubsteppe province. A part of Turtle Mountain WSA also lies within the Upper Gila Mountains Forest province. Table 3-3 shows the Bailey-Kuchler potential natural vegetation types as they occur within the WSAs. Table 3-4 describes these types.

Wilderness in the Local Region. The local region includes the following areas: all of Cochise, Graham, and Greenlee Counties, eastern Pinal County, and southern Gila County in Arizona, and western Grant and Hidalgo Counties in New Mexico. This region has three designated wilderness areas and six administratively endorsed wilderness areas (Table 3-5). The location of these areas is shown on Plate 1, the Arizona Wildnerness Status Map, in the pocket at the back of this EIS.

Needle's Eye, AZ-4-1A (Map 1)

In Needle's Eye WSA, the Gila River flows through a steep-walled canyon into which several side canyons enter. The river canyon is bounded on the north by the rugged Mescal Mountains. WSA elevations range from 2,300 feet to 4,300 feet.

Most of the WSA is covered by such desert shrub vegetation as paloverde, saguaro and barrel cactus, catclaw acacia, and jojoba. Riparian vegetation along the Gila River and Mescal Creek includes mesquite, Fremont cottonwood, Arizona sycamore, velvet ash, willow, and saltcedar.

The 9,485 acres in the Needle's Eye WSA are in essentially natural condition. Human imprints include 5 miles of fences, 7.2 miles of a powerline, two developed springs, two corrals, a line cabin, 2.7 miles of vehicle ways, and a silted-in dirt reservoir. The range improvements and associated developments are largely unnoticeable and do not impair naturalness. The powerline and ways only slightly impair naturalness.

WILDERNESS VALUES

TABLE 3-3
WSA ACRES BY VEGETATION TYPES

WSA	Oak-Juniper Woodland	Transition	Creosotebush/ Bursage	Grama/Tobosa Shrubsteppe
Needle's Eye	-	-	9,485	-
Black Rock	-	-	-	8,492
Fishhooks	-	15,013	-	-
Day Mine	-	16,629	-	-
Gila Box	-	-	14,361	3,470
Turtle Mountain	-	5,422	2,500	9,500
Javelina Peak	-	-	-	17,870
Peloncillo Mtns.	12,317	-	-	-
Happy Camp Canyon	12,000	-	-	4,761

A 44-kv powerline runs east-west through the center of the WSA. Built in 1928 with materials brought in by pack animal, the powerline's rusty towers blend in well with the surrounding landscape. Patrolled by helicopter or horseback, the powerline only slightly influences naturalness because only one or two towers are visible at any one time, few of the towers are skylined, and the powerline has no access roads.

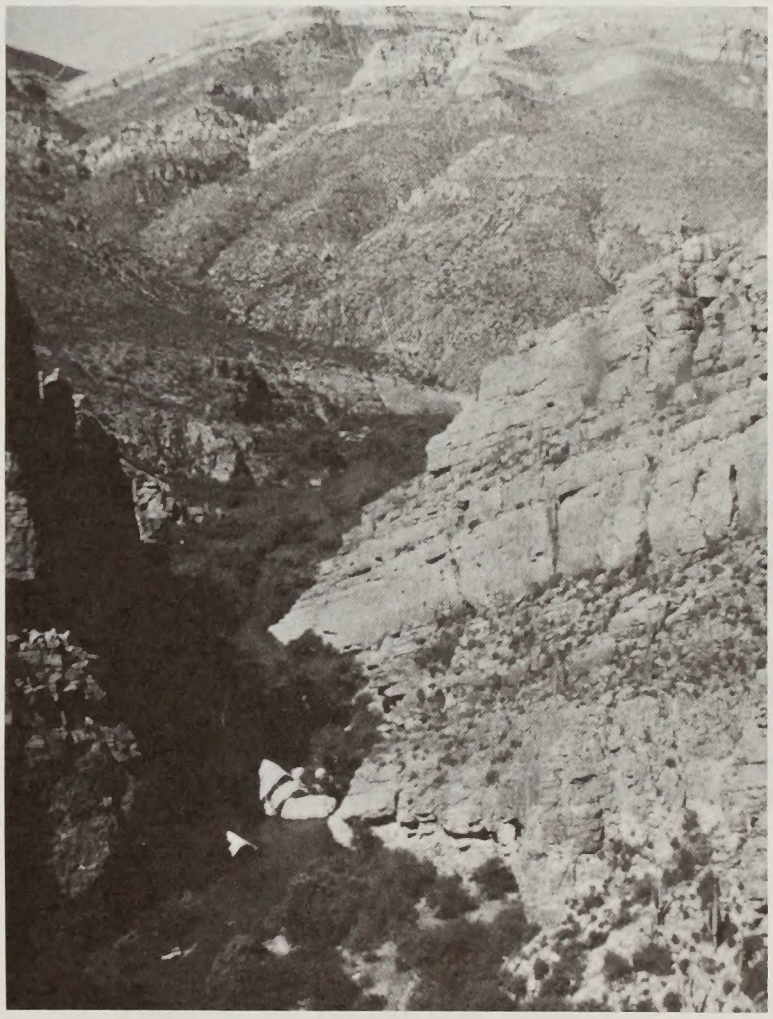
Two vehicle ways pass through the WSA. The first, in the WSA's northeast, is a mile long and not drivable due to washed out sections. During high water releases from Coolidge Dam, access to the way is flooded by the Gila River. The other vehicle way parallels Mescal Creek for 1.7 miles and is used only occasionally on a short portion at its northern end. The remainder of this way is badly deteriorated and unusable. Neither way has had any known maintenance. Both ways are slowly returning to a natural condition and have only a small localized adverse impact on naturalness.

Few outside human imprints or activities affect the WSA. Pierson's Ranch on Mescal Creek, Coolidge Dam, Christmas Mine, and the roads on the eastern and western boundaries can be seen from a few isolated areas within the WSA but are well screened from view by the WSA's rough topography.

Outstanding opportunities for solitude exist throughout the WSA because of its isolated location and topographic and vegetation screening. The WSA's long and narrow configuration is offset by the ruggedness of the Mescal Mountains. Mescal Creek, Dick Spring Canyon, their tributaries, and other side canyons of the Gila River provide numerous places for visitors to find seclusion. The area's solitude is enhanced by extensive undeveloped portions of the San Carlos Indian Reservation on the WSA's north and south sides. Views out of the WSA to the Indian country create a sense of increased remoteness.

The diversity of landforms provides visitors with a variety of experiences and challenges. Outstanding opportunities for recreation in the WSA include hiking, backpacking, horseback riding, rock climbing, hunting, camping, birdwatching, photography, and sightseeing.

Scenic values and wildlife enhance the WSA's wilderness values. Steeply tilted rock layers, sharp cliff-lines, and the deeply cut canyon of the Gila River are outstanding scenic features. The cliffs and riparian habitat provide important nesting sites for raptors, including several sensitive species. Bald eagles, a federally listed endangered species, winter in the WSA.



In one of many sites of rugged beauty in Needle's Eye WSA, the limestone strata of the Mescal Mountains dip steeply to the Gila River to form the narrow passage known as Needle's Eye.

TABLE 3-4
WSA VEGETATION TYPES

Type and WSA	Occurrence	Features	Dominant Species	Other Components	Representation in NWPS*
Oak-Juniper Woodland Type #27 Peloncillo Mountains and Happy Camp Canyon WSAs	Western Texas, southern Arizona, New Mexico	Low open-to-dense forest of broad-leaf and needle-leaf evergreen trees and varying understory	Alligator juniper, one-seed juniper, Emory oak, Mexican blue osk	Manzanita, sideoats grama, blue grama, hairy grama, sotol, ceanothus, silk-tassel, beargrass, Mexican pinyon, gray oak, silver-leaf oak, shrub live oak, Mearns sumac, littleleaf sumac, Lowell ash, narrow-leaf hoptree	Vegetation type occurs in 2 designated wilderness areas (47,000 acres), 4 administratively endorsed areas, and 17 areas under study. The vegetation type is well represented and has excellent opportunities for expanded representation from the endorsed areas.
Transition (between Osk-Juniper Woodland and Mountain Mahogany-Oak Shrub Vegetation) Type #28 Fishhooks, Day Mine, and Turtle Mountain WSAs	Arizona	Low open-to-dense forest of broad-leaf and needle-leaf evergreen trees and varying understory in transition with dense-to-open deciduous or semi-deciduous shrubs	Alligator juniper, one-seed juniper, Emory oak, Mexican blue oak, mountain mahogany	Manzanita, sideoats grama, blue grama, hairy grama, sotol, ceanothus, silktassel, beargrass, Mexican pinyon, gray oak, silver-leaf osk, shrub live oak, Mearns sumac, Lowell ash, narrowleaf hoptree, big-tooth maple, Apache plume, skunkbush sumac, snowberry	No existing or administratively endorsed wilderness areas represent this vegetation type. Only 3 WSAs under study could represent it, all in the Safford District.
Creosotebush/Bursage Type #36 Needle's Eye, Gila Box, and Turtle Mountain	Southeast California, southern Arizona	Open stand of shrubs and dwarf shrubs	Creosotebush	Catclaw acacia, blue paloverde, barrel cactus, ocotillo, wolfberry, purple prickly pear cactus, mesquite, desert zinnia, wooly paperflower	Vegetation type occurs in no designated wilderness areas, 1 administratively endorsed area (43,000 acres), and 4 WSAs.
Grama/Tobosa Shrubsteppe, Type #52 Black Rock, Gila Box, Turtle Mountain, Javelina Peak, Happy Camp Canyon WSAs	Southeast Arizona, southern New Mexico	Short grasses with shrubs varying from very open to dense	Black grama, tobosa, creosotebush, tarbush	Whitethorn, threeawn, desert marigold, sideoats grama, broom snakeweed, bush muhly, prickly pear cactus, cholla cactus, mesquite, alkali-sacaton, sand dropseed, banana yucca, soaptree yucca, black grama, fourwing saltbush, catclaw acacia, Mormon tea, beargrass, ocotillo, mariola	Vegetation type occurs in no existing or administratively endorsed wilderness areas. Twenty-two areas under study in Arizona and New Mexico offer a broad opportunity to represent this vegetation type.

*National Wilderness Preservation System

In Needle's Eye WSA the Gila River has cut a dramatic canyon through southeast Arizona's Mescal Mountains.

Black Rock, AZ-4-8 (Map 2)

Black Rock WSA is dominated by the steep foothills of the Santa Teresa Mountains from which numerous canyons and washes drain predominantly northward. Elevations range from 3,400 feet to a high point of 5,892 feet on Jackson Mountain.

The WSA's vegetation consists of the desert shrub, mountain shrub, grassland, and riparian vegetation types. Common plants include whitethorn, snakeweed, cholla and prickly pear cactus, juniper, scrub oak, Arizona sycamore, Arizona walnut, velvet ash, and various grasses.

TABLE 3-5
EXISTING AND ADMINISTRATIVELY ENDORSED
LOCAL WILDERNESS AREAS

Status	Name of Area	Administering Agency	Acres
Designated	Chiricahua	FS	18,000
	Chiricahua National Monument	NPS	9,440
	Galiuro	FS	52,717
	Total 3 areas		80,157
Endorsed	Aravaipa Canyon	BLM	6,670
	Blue Range	FS	163,388
	Chiricahua Contiguous	FS	60,150
	Lower San Francisco	FS	10,200
	Miller Peak	FS	22,280
	Santa Teresa	FS	27,160
	Total 6 areas		289,848

FS = Forest Service. NPS = National Park Service.

WILDERNESS VALUES

Water seasonally flows through Black Rock Canyon in Black Rock WSA.

The 8,492 acres of Black Rock WSA are generally natural. Human imprints include 9 miles of fences, a pipeline, six small dirt reservoirs, three developed springs, 1.0 miles of a vehicle way, and a rock dam. These imprints are small, scattered throughout the area, and screened by vegetation or topography, thus having little impact on naturalness. In the lower foothills on the northeast side of Jackson Mountain, a mining road roughly parallels the WSA boundary for a mile. Approved under the Interim Management Policy, this road branches off a cherrystem road, is not visible from most of the WSA, and only impacts a small area.

Outside human imprints and activities also have little influence on the WSA. Visible from limited viewpoints in the WSA are the Dryden, Glover, and Pace ranches, their buildings, improvements, and fields, and the fluorspar mine at the end of the cherrystem road.

The WSA's size, shape, topographic screening, and isolated location provide outstanding opportunities for solitutde throughout. This WSA is enhanced on the south boundary by the roadless Santa Teresa Mountains, an area administratively endorsed for wilderness in Coronado National Forest.

Black Rock WSA also offers outstanding opportunities for primitive recreation, including hiking, backpacking, horseback riding, hunting, rock climbing, birdwatching, photography, and sightseeing. The summit of Jackson Mountain offers wide vistas of the Safford Valley and the Gila, Santa Teresa, Galiuro, and Pinaleno Mountains. Recreation activities are further enhanced by the opportunity to continue them in the Santa Teresa Mountains.

A scenic feature and wildlife enhance the WSA's wilderness values. Black Rock, a volcanic plug in the WSA's northwest, is a highly scenic feature visible for many miles. Its steep walls rise almost 900 feet from its base and provide nest sites for eagles and falcons. Two plant species growing on Jackson Mountain, *Echinocereus ledingii* and *Plummera ambigens*, have been proposed for federal listing as threatened or endangered by the Fish and Wildlife Service.

Fishhooks, AZ-4-14 (Map 3)

Lying in the rugged Gila Mountains, Fishhooks WSA is an area of numerous steep and narrow canyons. Elevations range from 4,000 feet to a high point of 6,629 feet on Gila Peak. The many canyons and washes drain southwesterly toward the Gila River.

AFFECTED ENVIRONMENT

The mountain shrub, pinyon-juniper, and desert shrub vegetation types occur in the WSA. Common species include juniper, snakeweed, turpentine bush, Emory oak, singleleaf pinyon, jojoba, whitethorn, and prickly pear cactus.

The 15,013 acres of the Fishhooks WSA are highly natural. Human imprints include about 11 miles of fence, 3.5 miles of vehicle ways, four dirt reservoirs, two rock dams, two water catchments, a developed spring, and a corral. These imprints, all well screened by vegetation and the extremely rugged topography, have only slight and localized impacts on naturalness.

Topographic and vegetation screening and a sense of remoteness contribute to the outstanding opportunities for solitude throughout the WSA. In spite of the WSA's long and narrow shape, the rugged topography and canyons offer numerous secluded spots, particularly Fishhook, Sam, Steer Springs, and Dutch Pasture Canyons.

Gila Peak, seen in the background across portions of the Fishhooks Canyons, is the highest point in Fishhooks WSA.

Fishhooks WSA offers outstanding opportunities for hiking, backpacking, horseback riding, hunting, rock climbing, birdwatching, photography, and sightseeing. This area consists of the most rugged portion of the Gila Mountains and has highly scenic views and interesting geologic features.

Numerous special features enhance wilderness values in Fishhooks WSA. The Gila Mountains' cliffs, peaks, and canyons are highly scenic. The cliffs are also valuable nesting habitats for raptors. Riparian habitat important to wildlife occurs in Sam Canyon and portions of the Fishhook Canyons. The watersheds of Upper and Middle Fishhook Canyons have several plant communities in a climax condition. The canyons support a broadleaf riparian woodland and a stand of Lowell ash, probably the best examples of these vegetation communities in the Gila Mountains. Such areas are valuable for assessing potential vegetation production in the Gila Mountains. In addition, this WSA may have the highest cultural resource significance in the Safford District.

DAY MINE, AZ-4-16 (Map 4)

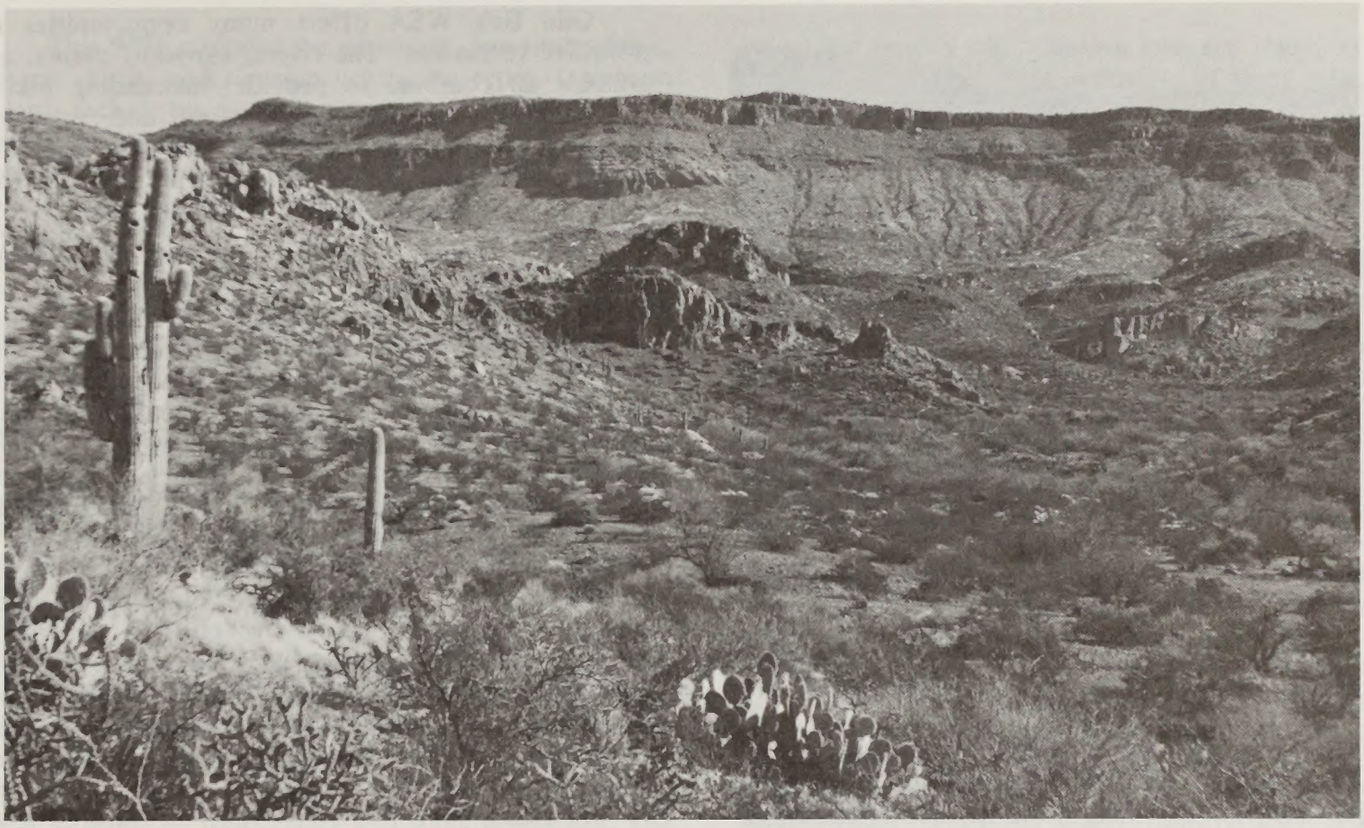
Day Mine WSA consists of part of the rugged Gila Mountains, along with steep foothills, canyons, and washes. From a high point of 6,444 feet on Hilonsum Peak in the WSA's north, the terrain drops to 4,000 feet along the southern boundary. Streams drain mainly to the southwest towards the Gila River. The Left Fork of Markham Creek, the eastern boundary of the WSA, has carved an interesting steep-walled narrow canyon.

The mountain shrub, pinyon-juniper, and desert shrub vegetation types occur in this WSA. Common species include juniper, snakeweed, turpentine bush, Emory oak, singleleaf pinyon, jojoba, whitethorn, agave, and prickly pear cactus.

Most of the Day Mine WSA's 16,629 acres are in a natural condition. Human imprints include 6 miles of fences, two pipelines, four dirt reservoirs, two developed springs, and a small weather station. Most of these imprints have only a slight localized adverse impact on the area's naturalness.

The WSA also has seven rarely used ways totaling 3.9 miles, all in the northern part of the WSA. Five of the ways are short (each 0.2 miles long). The other two ways (1.3 and 1.6 miles long) are more noticeable and are occasionally used by ranchers and hunters. These ways, however, are deteriorating, are screened by topography and vegetation, and only slightly impact localized areas.

Human imprints and activities outside the WSA little influence the WSA. The Day Mine line cabin, several range improvements, and four short cherrystem roads can be seen from only a few isolated areas in the WSA. The cherrystem road to Brushy Tank and its associated



The escarpment in the background divides Day Mine WSA into the Sonoran Desert vegetation type shown above and the pinyon-juniper dominated slopes at the higher elevations.

corrals and dirt reservoirs moderately impact the naturalness of parts of the WSA's north-central portion, but these impacts are largely screened by the WSA's topography and vegetation.

Outstanding opportunities for solitude exist throughout the WSA. The area's size, shape, topography, and vegetation contribute to these opportunities. The cliffs along the southern boundary, the deep canyons throughout the area, and the pinyon-juniper forest in the upper elevations of the Gila Mountains offer numerous secluded spots. Long distance views of the Safford Valley and the surrounding mountains from the WSA's high points also add to a sense of isolation and remoteness.

The topography and vegetation of Day Mine WSA offer outstanding opportunities for primitive and unconfined recreation, including hiking, camping, hunting, horseback riding, photography, and sightseeing.

The WSA also has important scenic and wildlife values. The southern escarpment of the Gila Mountains within the WSA is highly scenic due to the abrupt elevation change and the subtle coloration of rock formations. The cliffs offer valuable nest sites for raptors, and the Left Fork of Markham Creek provides important riparian habitat.

GILA BOX, AZ-4-22/23/24(A) (Map 5)

Known for its 1,000-foot-deep canyons between the Gila Mountains and the Black Hills, the Gila Box WSA contains 15 miles of the Gila River, 3 miles of the San Francisco River, and numerous small canyons. WSA elevations range from a high of 5,800 feet to a low along the Gila River of 3,160 feet. The area's running water, rugged and colorful terrain, highly eroded geologic formations, and diversity of plants and animals produce outstanding scenery.

The WSA contains the grassland, mountain shrub, desert shrub, and riparian vegetation types. Common plants include snakeweed, juniper, evergreen oaks, jojoba, whitethorn, cholla and prickly pear cactus, and various grasses. Riparian areas along rivers support Fremont cottonwood, Goodding willow, Arizona sycamore, Arizona walnut, velvet ash, netleaf hackberry, and mesquite.

The Gila Box WSA's 17,831 acres are natural. Only slightly impairing the area's naturalness, the WSA's human imprints include 9 miles of fences, five developed springs, two pipelines, two corrals, two dirt reservoirs, one small storage tank, troughs, seven short vehicle ways, and six historic sites. Many of these imprints lie in the WSA's uplands and near its boundaries.

AFFECTED ENVIRONMENT

Numerous side canyons cut through volcanic formations leading to the Gila River in Gila Box WSA.

The six historic sites, associated with past ranching and homesteading are generally unnoticeable. On the Aragon and Maques sites, however, homesteading attempts along the Gila River are more visible because of more structural remains. These sites lie in fairly dense mesquite groves which help to lessen their impact on naturalness.

Several human imprints outside the WSA impact the WSA's naturalness: several boundary roads, three cherrystem roads, and outside sights and sounds from a mine. The roads have a fairly low impact on naturalness due to their infrequent use and topographic and vegetation screening. The cherrystem road to Gillard Hot Springs is 1.5 miles long and receives a small amount of use from hunters and off-road vehicles. Though topography screens this road from most of the WSA, the road can be easily seen from a small part of the WSA.

To the northeast of the WSA is the Phelps Dodge Corporation's mine and smelter at Morenci, which emits smoke, odors, and noise that occasionally can be noticed in parts of the WSA. The mine, smelter, and tailings pond dikes can be seen from portions of the WSA but these outside influences little affect the rest of the WSA.

Opportunities for solitude are outstanding throughout most of the WSA. The rugged topography with its numerous canyons offers many opportunities for isolation and solitude, which are enhanced by the area's large size and natural condition. Such opportunities, however, are less than outstanding along Gillard Hot Springs Road and the river, on and from which vehicles can be seen and heard.

Gila Box WSA offers many opportunities for primitive recreation. The rivers, canyons, plants, and animals all combine to provide outstanding hiking, backpacking, seasonal floatboating and canoeing, camping, photography, and sightseeing. The WSA also offers good opportunities for hunting, fishing, rock climbing, horseback riding, and birdwatching.

Several special features enhance the WSA's wilderness values. The perennial Gila and San Francisco Rivers flow for a combined length of 18 miles through the WSA. The 'last free-flowing stretch of the Gila River in Arizona' is a title given to this portion of the Gila River. The natural qualities of the Gila Box have made this stretch of the Gila an increasingly popular floatboating and canoeing area. Riparian vegetation, uncommon in the southwestern United States, greatly enhances wildlife habitat in the WSA. The Gila Box is well known for its population of wintering bald eagles. In addition, the WSA has many outstanding scenic areas with steep cliffs, colorful bluffs, deep canyons, a volcanic plug, and excellent examples of geologic erosion. Eight prehistoric and six historic sites have been recorded in the WSA. At least two of each type qualifies for listing on the National Register of Historic Places.

TURTLE MOUNTAIN, AZ-4-22/23/24(B) (Map 6)

Turtle Mountain WSA is dominated by numerous ridges with intervening canyons. Elevations range from 4,400 feet to a high point on Turtle Mountain of 6,635 feet. In the southern part of the WSA, the mountains and hills descend gradually towards the Gila River. Rugged terrain dominates the western part of the WSA as mountains steeply drop towards Bonita Creek. The northern and eastern parts of the WSA are highly dissected by rugged canyons, which have highly eroded rock formations along Eagle Creek.

The western flank of Turtle Mountain in Turtle Mountain WSA rises over 3,000 feet from nearby Bonita Creek.

WILDERNESS VALUES

This WSA contains the grassland, mountain shrub, desert shrub, and riparian vegetation types. Common plants include mesquite, snakeweed, juniper, evergreen oaks, jojoba, whitethorn, burroweed, and cholla and prickly pear cactus. Common species in the riparian areas include Fremont cottonwood, Goodding willow, Arizona sycamore, Arizona walnut, velvet ash, and netleaf hackberry.

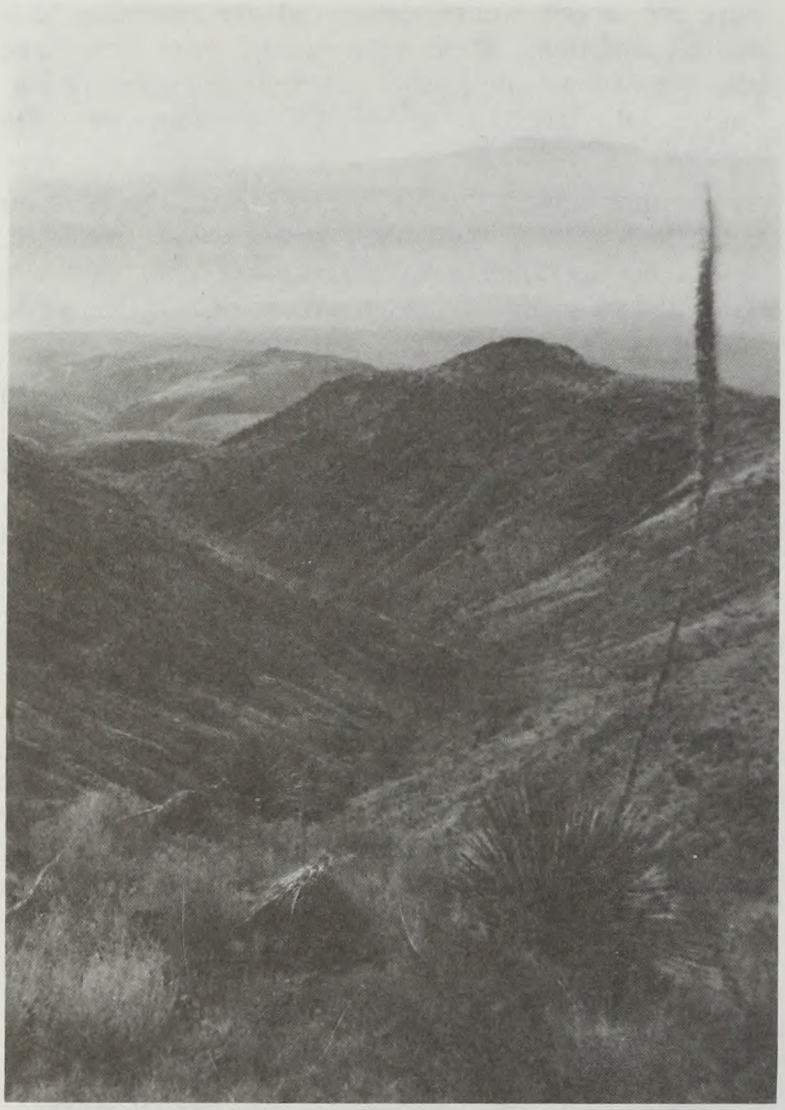
Turtle Mountain WSA's 17,422 acres are generally in natural condition. Human imprints include 11 dirt reservoirs, three masonry dams, seven developed springs, nine pipelines, a masonry storage tank, two corrals, 8 miles of fence, and four vehicle ways totaling 2.8 miles. These imprints are well distributed throughout the WSA and are made largely unnoticeable by topographic screening. The WSA has so many existing imprints, however, that more projects would create impacts that cumulatively would impair the naturalness of the WSA.

The developed springs, pipelines, corrals, and fences have almost no impact on naturalness due to their small size and low profile and to vegetation screening. The reservoirs and masonry dams slightly impair naturalness in small, localized areas, but they are mostly well screened by topography and some vegetation. The ways are largely unnoticeable and are returning to a natural condition. Many segments of these ways have been washed out, and other segments are revegetating. Future natural processes will further deteriorate the remnants of these ways.

Human imprints and activities outside the WSA do not greatly diminish the WSA's wilderness character. Several nearby range improvements and some boundary roads can be seen in a few localized areas in the WSA, but they only slightly impact naturalness.

The major outside impact comes from Phelps Dodge Corporation's operation at Morenci, which includes the copper mine, a smelter, tailings ponds, dikes, pipelines, leaching operations, roads, heavy equipment, railroads, and overburden dumps. Topography screens the view of much of the operation from within the WSA, and the higher elevations from which the smelter stacks and the overburden dumps are visible are further away from these imprints and less affected by them. Moreover, earth-colored tones of the overburden dumps do not highly contrast with the surrounding landscape, and distance and topography reduce mining sounds within the WSA. At times, usually in the early morning, smelter smoke blows over the WSA. But by midmorning, prevailing winds from the west, common

The cliffs and rock outcrops of Hot Springs Canyon are typical of the canyons of Turtle Mountain WSA that drain eastward to Eagle Creek.



Canyons draining the southern slopes of Turtle Mountain WSA begin a precipitous drop to the Gila River, 3,500 feet below the summit of Turtle Mountain.

during daylight, remove the smoke from the WSA. Overall, the sights, sounds, and odors of the Morenci mining operation do not greatly detract from the WSA's naturalness.

Outstanding opportunities for solitude exist throughout the WSA. The area's large size, shape, topography and vegetation allow visitors to avoid the sights, sounds, and evidence of other people. The WSA's many deep canyons, such as Trujillo, Hot Springs, and South Smith Canyons, provide numerous secluded spots.

The size of the WSA and its diversity of topographic features provide visitors with outstanding opportunities for the following primitive recreation activities: hiking, backpacking, camping, horseback riding, hunting, photography, and sightseeing.

The existence of certain wildlife species in the area and historical features enhance the WSA's wilderness values. Several areas within the WSA are important as nesting sites for raptors, which often depend on undeveloped areas for such habitat. Recently, Rocky Mountain bighorn sheep have moved into the general area of the WSA. The Safford-Morenci Trail, which crosses the northern part of the WSA, has historical significance as an early supply route to the mines at Morenci.

JAVELINA PEAK, AZ-4-48 (Map 7)

Although much of Javelina Peak WSA consists of gently rolling lowlands, the WSA's focal point is a portion of the rugged Whitlock Mountains in the WSA's northeast. These mountains rise abruptly from the valley floor and culminate in the rugged, steep-sided 5,592-foot-high Javelina Peak. A small area of highly eroded badlands lies at the western base of Javelina Peak. The southern portion of the WSA is dominated by heavily vegetated dunes of potential ecologic significance.

This WSA contains desert shrub, creosotebush, and mesquite vegetation types. Common plants include whitethorn, cholla and prickly pear cactus, wolfberry, creosotebush, mesquite, yucca, catclaw, Mormon tea, fourwing saltbush, burroweed, and various grasses.

Javelina Peak WSA's 17,870 acres are mostly in natural condition. Human imprints include 4 miles of fences, two masonry dams, a dirt reservoir, and an ORV use area. Most of these imprints little impair naturalness.

Four miles of vehicle ways in the WSA's northwest, branch off of a powerline road. Bladed many years ago, these ways are now faint. Numerous sections have been washed out, and most of the remnants are slowly revegetating and returning to a natural condition.

One-third of a 4,000-acre dune area lies within the WSA's southern portion. The dunes receive heavy wintertime ORV use, but most use occurs outside the WSA. Evidence of use consists of vehicle tracks and some damage to vegetation.

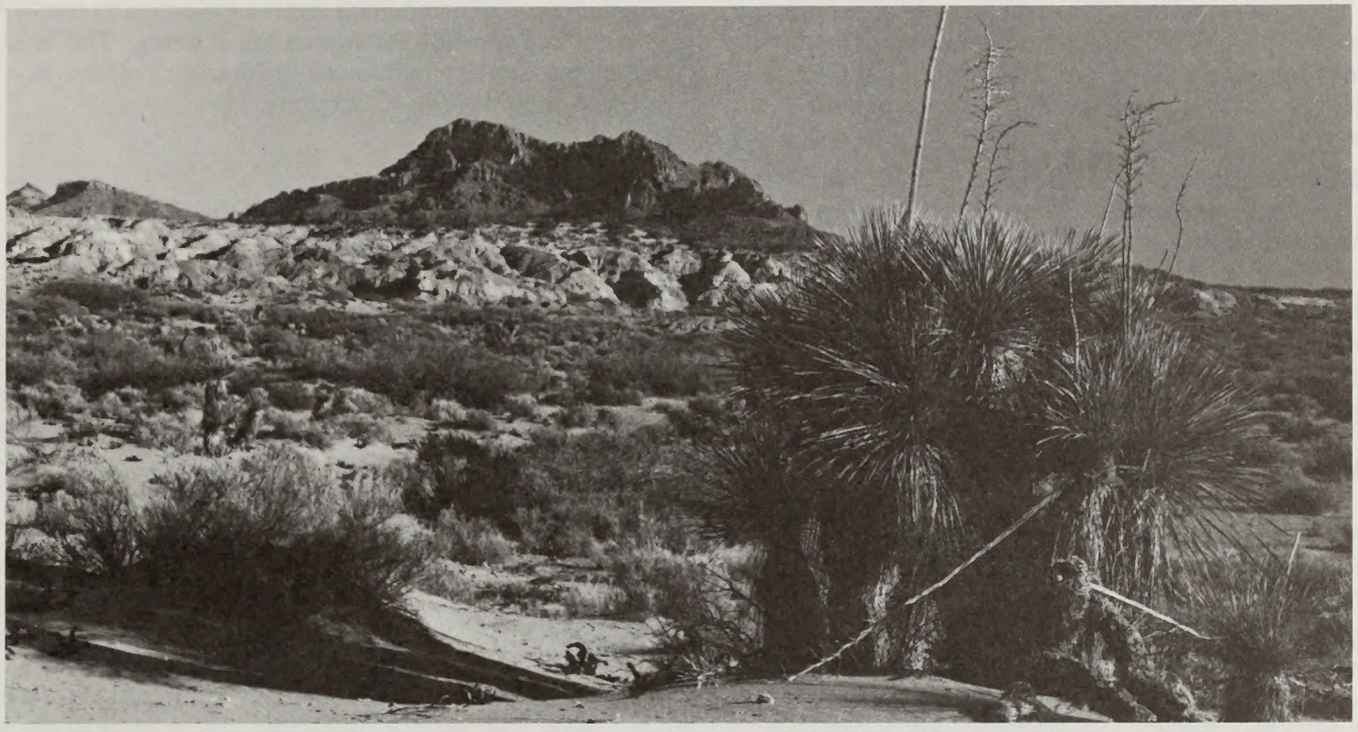
Several human imprints outside the WSA impact portions of the WSA, including boundary roads, a powerline, corrals, and a cherrystem road to a stock tank.

About half of the WSA boundary is formed by roads. Haekel Road on the western boundary receives much use that is visible from the WSA's southwestern quarter. Badger Den Well Road on the eastern boundary receives slight use, which topography screens from all but isolated portions of the WSA.

A little-used cherrystem road branching off Haekel Road extends 1.5 miles into the WSA to KMP Tank. Being highly visible in the nearby WSA flatlands, this road and any vehicles on it impact the naturalness of the surrounding area.

Parts of the northwestern boundary are formed by the access road for a 345-kv powerline. Portions of the

WILDERNESS VALUES



The badlands in the south of Javelina Peak WSA offer desert visitors a variety of interesting features.

powerline and road are visible from the northwestern third of the WSA, but topographic screening limits most of the impacts to small portions of the WSA.

Human imprints along the WSA's boundaries somewhat impair the area's naturalness. The WSA's large size along with topographic and vegetation screening, however, tends to lower or eliminate most of the influence of these imprints. The most severe impacts — ORV use and motor vehicles on boundary roads — occur along the WSA's boundaries, especially to the west.

The size, shape, and topography of Javelina Peak WSA provide outstanding opportunities for solitude. Several canyons in the Whitlock Mountains, rolling hills and highly eroded badlands at the base of these mountains, and numerous lowland washes combine to offer opportunities for isolation. The high points in the WSA offer excellent views of the surrounding undeveloped countryside and add to the feeling of isolation. Only near the boundary roads, especially Haekel Road, do the opportunities lessen or disappear.

Javelina Peak WSA offers outstanding opportunities for such primitive recreation as hiking, horseback riding, rock collecting, rock scrambling, camping, photography, and sightseeing. Topographic diversity greatly enhances many of these activities.

Scenic, geologic, ecologic, and paleontological features enhance the WSA's wilderness values. The Whitlock Mountains have excellent scenic values, and Javelina Peak is an interesting geologic feature. The dunes in the WSA's southern portion are of possible ecologic significance. The WSA has two areas with paleontological resources. The significance of these deposits has not been established, but the Whitlock Hills deposit is extensive, with a high potential for more discoveries within the WSA.

PELONCILLO MOUNTAINS, AZ-4-60 (Map 8)

Peloncillo Mountains WSA lies in the most rugged portion of the Peloncillo Mountains. The main features of the WSA are steep mountains, cliffs, and numerous canyons. The eastern portion of the WSA includes some gentle hills and flatlands.

This WSA contains mountain shrub, grassland, desert shrub, and creosotebush vegetation types. Mesquite, snakeweed, burroweed, various grasses, turpentine bush, juniper, Emory oak, creosotebush, catclaw, whitethorn, agave, and prickly pear cactus are some of the more common plants.

The WSA's 12,317 acres are mostly natural. Human imprints include 15 miles of fences, seven stock tanks, two pipelines, a developed spring, a masonry storage tank, two metal storage tanks, a short concrete diversion dike, and three vehicle ways totaling 1 mile in length. These imprints only slightly impair naturalness.

Two of the ways lie in Little Doubtful Canyon and branch off of the cherrystem road in the canyon bot-

tom. The other way lies in the rolling hills of the eastern portion of the WSA. These ways receive a small amount of use from ranchers and hunters, are not highly visible due to vegetation screening, and have a low impact on the area's naturalness.

Human imprints and activities outside the WSA slightly impair naturalness. Two short cherrystem roads are the major source of outside impacts. Little Doubtful Canyon Road extends 1 mile into the WSA, leading to a dirt reservoir. It is primarily used by a rancher but is also used by hunters. A half-mile-long road enters the WSA from the west, leading to two small masonry dams. Driven mainly by a rancher, this road receives little other use. Neither of these roads is highly visible, and topographic screening allows neither to greatly detract from naturalness. Vehicles in Little Doubtful Canyon, however, can be highly visible from surrounding ridges and can affect the canyon's apparent naturalness.

Throughout most of the WSA, rugged topography and numerous canyons offer outstanding opportunities for solitude. In two areas, however, such opportunities are less than outstanding. Near the road on the WSA's southeastern boundary the terrain is much flatter, and vehicles can be seen and heard. Vehicles also impair or eliminate opportunities for solitude in Little Doubtful Canyon, but travel is infrequent and the road appears to be returning to a natural condition through a lack of use.

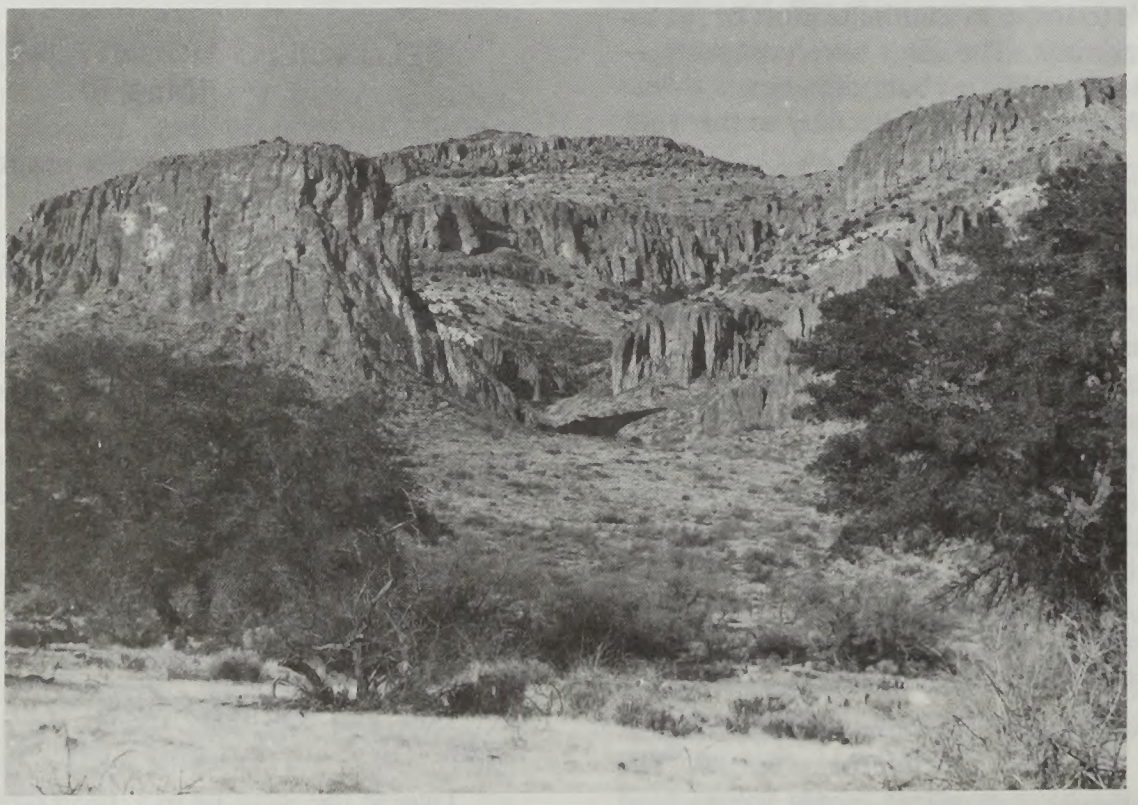
Peloncillo Mountains WSA offers outstanding opportunities for primitive recreation, including hiking, backpacking, rock scrambling, and sightseeing. The higher country offers long distance views, and the WSA also offers good opportunities for hunting. The WSA's excellent scenery enhances wilderness values in the rugged mountains and canyons.

HAPPY CAMP CANYON, AZ-4-65 (Map 9)

Most of the Happy Camp Canyon WSA lies in the rugged Dos Cabezas Mountains. The WSA includes several peaks over 7,500 feet with a high point of 7,950 feet on Cooper Peak. Numerous canyons wind their way between these peaks. The dramatic terrain of the western and central portions of the WSA changes to rolling hills along the eastern boundary as the elevation drops to 4,080 feet. The northeastern slope of Government Peak is a large, highly scenic area strewn with granite outcrops and boulders.

The WSA contains mountain shrub, desert shrub, and riparian vegetation types. Common plants include turpentine bush, snakeweed, mountain mahogany, juniper, oak species, mesquite, grasses, agave, and prickly pear cactus. Common riparian species include Arizona sycamore, Fremont cottonwood, velvet ash, and Arizona walnut.

The 16,761 acres in the Happy Camp Canyon WSA are essentially natural. Human imprints include 18 miles of fences, 11 developed springs, a well, three vehicle ways totaling 2.8 miles, two old cabins, several old mines, a small masonry dam, a slickrock catchment,



Scenic views of rocky crags and cliffs occur throughout Peloncillo Mountains WSA.

WILDERNESS VALUES

On the southwest side of Happy Camp Canyon WSA the peaks of the Dos Cabezas Mountains exceed 7,500 feet in elevation.

two small metal storage tanks, and the foundations of several old houses. These imprints only slightly impair the WSA's naturalness.

The vehicle ways lie in upper Buckeye Canyon (0.5 miles), upper Wood Canyon (0.3 miles), and in Happy Camp and Howell Canyons (2 miles). The Buckeye Canyon and Wood Canyon ways appear not to have been recently used or maintained and are both highly deteriorated, revegetating, and returning to a natural state. They moderately impair the naturalness of the canyons through which they pass, but topography screens them from most of the WSA. The way in Happy Camp and Howell Canyons, old, faint, and heavily vegetated, only slightly impairs naturalness.

The wood cabins in Happy Camp and Tar Box Canyons, set into small groves of trees, are occasionally used by hunters and ranchers. Highly weathered and well screened by vegetation, these cabins have small and localized impacts on naturalness.

Old mines are found in Buckeye and Howell Canyons and on the southwestern slopes of Howard Peak. The Howell Canyon and Howard Peak mines are small, largely unnoticeable, and have a low impact due to vegetation and topographic screening. The Buckeye Canyon mines are larger and more noticeable. They include several shafts and tunnels and have a moderate impact on naturalness. Topographic screening and their isolated location on the northwestern edge of the WSA, however, make them unnoticeable from most of the WSA.

Several human imprints outside the WSA impact naturalness within small portions of the area. These imprints include boundary roads, cherrystem roads, and mines.

Most of the western edge of the WSA is bounded by the Elma Mine Road, which has a moderate to severe impact on those small portions of the WSA from which it is visible. Topography, however, screens this road from most of the WSA.

The cherrystem road in Wood Canyon, which, intrudes a short distance into the WSA, has several old mines and cabins along its short length. The impacts are severe, but only within this small, narrow canyon. Topography screens these impacts from most of the WSA.

The cherrystem road in lower Happy Camp Canyon leads to a parcel of private land. The road is not highly visible due to excellent vegetation screening. The impacts on naturalness within the WSA are low to moderate.

AFFECTED ENVIRONMENT

Looking down Happy Camp Canyon beyond the WSA boundary, one can see the San Simon Valley.

The Apache 12 and Elma Mines are visible from only small portions of the WSA and have small, localized impacts on the WSA's naturalness.

Happy Camp Canyon WSA, with its rugged topography and numerous canyons, offers many outstanding opportunities for isolation and solitude. Opportunities for solitude are less than outstanding along the western boundary and in lower Happy Camp Canyon. When vehicles are in these areas they can be seen and heard, and they thus eliminate much of the solitude.

The WSA offers many opportunities for primitive recreation. The topography, animals, and plants combine to allow outstanding opportunities for hiking, backpacking, camping, rock scrambling, and sightseeing. The higher mountains and ridges offer outstanding long-distance views of the Sulphur Springs and San Simon Valleys and numerous mountain ranges. The WSA also offers good opportunities for hunting, horseback riding, and photography.

Happy Camp Canyon WSA has two special features that enhance the area's wilderness values. The first includes numerous riparian areas of high importance to all wildlife in the area. The second consists of a jumble of highly scenic granite boulders, balanced rocks, and rock outcroppings on the northeastern slopes of Government Peak. During wet periods, numerous pools and waterfalls form among these boulders.

MINERALS AND ENERGY

This section discusses information on minerals and energy by WSA. A more comprehensive discussion that includes geology can be found in the Appendix. Information about minerals and energy was obtained through a GEM (geology, energy, and minerals) inventory. This inventory, prepared by the Arizona Bureau of Geology and Mineral Technology (ABGMT, 1982), consisted of a literature search and data gathering for each WSA. Mineral and energy assessments in this EIS were made from this data. Any areas recommended for wilderness will have further mineral surveys conducted on them by the U.S. Geological Survey and Bureau of Mines to determine any mineral values that may be present.

Though the U.S. Geological Survey (USGS) has classified all the lands in all the WSAs as not being prospectively valuable for oil and gas, the overthrust belt (see Glossary) in Arizona has recently been the scene of intensive oil and gas exploration. So far, no oil and gas have been discovered in southeastern Arizona. Because of the extent of the exploration, and until new data can show otherwise, BLM will consider all land within the overthrust belt to have some potential for oil and gas. Table 3-6 shows the mining claim status of the WSAs as well as the acres of oil and gas leases according to BLM Master Title Plats.

TABLE 3-6
MINERAL STATUS

	Mining Claims*	Acres under Oil and Gas Leases **
Needle's Eye	43	0
Black Rock	25	0
Fishhooks	76	600
Day Mine	109	5,340
Gila Box	12	0
Turtle Mountain	0	0
Javelina Peak	0	12,240
Peloncillo Mountains	1	2,480
Happy Camp Canyon	268	8,480

* As of March 1982. ** As of January 1983.

The USGS has classified the lands in the Needle's Eye, Black Rock, Fishhooks, Peloncillo Mountains, and Happy Camp Canyon WSAs as not prospectively valuable for geothermal resources. The other study areas have geothermal resources that will be discussed by WSA.

NEEDLE'S EYE

No known economic mineral deposits occur within Needle's Eye WSA, but several past producers were and some current producers are active within a few miles. The major nearby producer is the Christmas Mine, 5 miles southwest of the WSA at the eastern end of the Dripping Springs Mountains. This copper mine lies in the Banner Mining District, where gold, silver, lead, zinc, mercury, and tungsten have also been produced. The Saddle Mountain Mining District, 4 miles southwest of the WSA, has produced copper, gold,

silver, lead, and zinc. The Stanley Butte Mining District lies 10 miles southeast of the WSA. This district has been a producer of gold, silver, iron, copper, barite, fluorspar, lead, and garnet.

Other minerals found near the WSA include coal, asbestos, chabazite, and uranium. Coal was mined a few miles south of the WSA in the Deer Creek Basin in the early 1900s, but high ash content and thinness of the beds make this coal deposit subeconomic. Asbestos occurs about 8 miles north of the WSA. The zeolite mineral chabazite occurs 3 miles west of the WSA, and exploratory drilling on several claims is evaluating this deposit.

Uranium is being produced in the southern Pinal Mountains 12 miles northwest of the WSA, and several other radioactive occurrences lie in the southern Pinal and northern Mescal ranges.

This WSA has good exploration potential based on the number of occurrences in the region and the presence within the WSA of rock similar to that found in surrounding mining districts.

No minerals on the National Defense Stockpile Inventory of Strategic and Critical Materials are known to occur in the WSA, but several nearby discoveries have been made.

BLACK ROCK

The only known mineralization within the WSA is fluorspar. Other prospects occur on Jackson Mountain, but the only production history is from this fluorspar deposit, which produced 1,200 tons in the 1950s. Some prospect pits a few miles south of the WSA exposed similar fluorspar veins. This past producer is of possible commercial interest, but more detailed work would be needed to determine the amount of ore reserves (ADMR, 1975). Fluorspar is listed on the National Defense Stockpile Inventory of Strategic and Critical Materials and was in low supply as of March 31, 1980 (Federal Emergency Management Agency, 1980). Potential for other mineral production within the WSA appears to be low.

Prospects 2 miles north of the WSA have found copper mineralization, and other nearby prospects have found iron mineralization. Some prospects just outside the western boundary of the WSA have found copper. Uranium occurrences have been found in small test pits both 5 miles north and 5 miles south of the WSA.

The Aravaipa and Stanley Butte Mining Districts include part of the Santa Teresa Mountains to the west of the WSA. These districts have a history of lead, zinc, copper, silver, and gold production from a variety of geologic environments.

A prominent volcanic feature, Black Rock rises on the edge of the Santa Teresa Mountains on the northwest side of Black Rock WSA.

AFFECTED ENVIRONMENT

FISHHOOKS AND DAY MINE

Minerals. No known economic mineral deposits occur within either WSA, and the potential for production appears low. Copper and manganese mineralization, however, occurs nearby to the west and south, and the report by Apache Energy and Mineral Company of a magnetic anomaly (see Glossary) extending into the southwest portion of Day Mine WSA seems to confirm some mineral potential for this area. Moreover, the Lone Star Mining District lies in the same mountain range (Gila Mountains) to the southeast of the WSAs. Several copper deposits have been found in this district, including the Phelps Dodge-Safford and Kennecott-Safford deposits, both of which have millions of tons of ore reserves. The San Juan Mine, located between the two deposits, has already extracted over a million tons of copper ore.

Copper and manganese, found near Fishhooks and Day Mine WSAs, are both on the National Defense Stockpile Inventory of Strategic and Critical Materials. As of March 31, 1980, copper was in short supply, whereas manganese was adequately stockpiled (Federal Emergency Management Agency, 1980).

Energy. The Day Mine WSA contains land classified by the U.S. Geological Survey as prospectively valuable for geothermal resources. Just 6 miles southwest of the WSA, hot springs and water wells have temperature gradients (see Glossary) exceeding 164°C/km.

GILA BOX AND TURTLE MOUNTAIN

Minerals. The only reported economic mineral in these WSAs is manganese, found in the eastern portion of Gila Box WSA. Manganese also occurs 2 miles northeast of Turtle Mountain WSA. Just to the southwest of the WSAs, the Dorothy B gold placers have been intermittently worked up to the present. The gold occurs in gravels along the Gila River and Bonita Creek. Just northeast of the Gila Box WSA, similar gold placer deposits occur along the San Francisco River and its tributary gulches.

The Morenci Mining District, northeast of the WSAs, is one of the largest copper producers in the United States and contains the second largest open pit copper mine in North America. The Morenci District has also been a producer of gold and silver.

Several large copper deposits have been discovered in the Lone Star Mining District, which lies in the Gila Mountains a few miles west of the WSAs. Millions of tons of ore are identified at the Kennecott, Phelps Dodge, San Juan, and Inspiration properties.

On the west-central edge of the Gila Box and directly south of Turtle Mountain WSA, copper mineralization occurs, and a 1,500-foot-deep drillhole reportedly found copper values of 0.2 percent.

The volcanic rocks underlying the WSA have yielded no mineral production in the past. The area, however, cannot be readily dismissed as having no mineral potential because it lies between Arizona's largest open pit mine and a relatively recent discovery of a district estimated to have over a billion tons of copper ore.

Of the minerals on the National Defense Stockpile Inventory of Strategic and Critical Materials, only manganese occurs in the Gila Box WSA. As of March 31, 1980, manganese was adequately stockpiled (Federal Emergency Management Agency, 1980).

Energy. The USGS has classified all lands within both WSAs as prospectively valuable for geothermal resources. The Gillard Hot Springs, on the north bank of the Gila River in the eastern part of Gila Box WSA, discharge the hottest water in the Southwest outside the Jemez Mountains of New Mexico. Measured surface temperatures range from 80°-84°C, and geochemical studies reveal probable subsurface temperatures of 135°-170°C. These studies have been substantiated by recent geophysical studies in the area. Seven miles to the northwest, Eagle Creek Hot Springs, just outside the eastern edge of Turtle Mountain WSA, discharge into a tributary of Eagle Creek. Shallow wells have tapped water up to 56°C. Geochemical studies suggest a possible 120°-150°C geothermal reservoir. Both the Gillard and Eagle Creek Hot Springs occur in a northwest trending fault zone that crosses the eastern part of both WSAs. Geothermal potential along the fault is the same as at the hot springs (Witcher, 1980). Studies conducted in 1981 suggest temperatures up to 150°C at 6,500 feet in the Clifton-Morenci area.

JAVELINA PEAK

Minerals. No known economic minerals occur in this WSA. The zeolite mineral chabazite occurs a few miles south of the WSA in a bedded deposit in the San Simon Valley, known as the Bowie chabazite deposit. Current production from various open pits is estimated at 2,000 tons per year. Whether the chabazite bed extends into the lower areas of the WSA is not known. The zeolite mineral clinoptilolite occurs just north of the WSA but doesn't appear to have the same production potential as the Bowie chabazite deposits.

North of the WSA, on the north flank of Dry Mountain, uranium minerals occur. The uranium mineralization has been explored by pits, dozer cuts, and a shaft.

The potential for other minerals is unknown, although the presence of metallic minerals can be

speculated. None of the minerals on the National Defense Stockpile Inventory of Strategic and Critical Materials are known to occur in the WSA.

Energy. In 1927 oil was reported to be struck at an artesian well just outside the southeastern tip of the WSA. At 1,200 feet a 22.5- foot-thick deposit of oil sand was found, bringing up a showing of oil. No records exist of any production from this well.

The WSA includes lands classified by the USGS as prospectively valuable for geothermal resources. Investigations by the Geothermal Group of the Arizona Bureau of Geology and Mineral Technology show good potential in the area for direct heat use of geothermal resources. The oil well at the southeastern tip of the WSA found artesian water with temperatures at 41°C. This well continues to flow. Another well 2.5 miles to the northeast reportedly discharged 34°C water in the late 1970s. This well lies next to the WSA but has no pump on it and is unused. According to Witcher (1980), additional wells 1,500 to 2,000 feet deep would likely find 40°-50°C water and might produce artesian flow in excess of 200 gallons per minute. Though a deep intermediate temperature resource (100°-150°C) is not confirmed, chemical geothermometry predicts a deep temperature of 104°-132°C (Witcher, 1980), thus creating a potential for exploration.

PELONCILLO MOUNTAINS

No known economic minerals occur within this WSA. Manganese occurs a few miles south of the WSA along the Arizona-New Mexico border. The Steins Pass Mining District, southeast of the WSA in New Mexico, has produced lead, zinc, copper, silver, and small amounts of gold and tungsten. One mine just south of the WSA produced significant amounts of gold and silver. The Peloncillo Mining District lies to the west of the Steins Pass District and about 6 miles south of the WSA. The possibilities for economic mineralization in this district are not favorable (Keith, 1973), and the prospects for mineralization within the WSA are based on speculation that mineralization could lie beneath the volcanic cover. None of the minerals found on the National Defense Stockpile Inventory of Strategic and Critical Materials are known to occur in the WSA.

HAPPY CAMP CANYON

Happy Camp Canyon WSA lies within the Dos Cabezas-Teviston Mining District, which has produced 100,000 tons of gold, copper, lead, silver, and iron ore, mainly between 1907 and 1950. The Buckeye Mine lies inside the northwestern portion of the WSA. This underground mine produced gold, with silver and lead by-products. An effort is underway to return this mine to production. The Silver Strike Mine, just outside the WSA's southeast boundary, produced lead and silver, with tungsten, zinc, and copper by-products.

The bouldery terrain of the Dos Cabezas Mountains in Happy Camp Canyon WSA provides scenic interest as well as challenges to hikers and rock scamblers.

The most intense concentration of mining occurred just south and west of the WSA, where several mines produced gold, silver, lead, zinc, and copper. Two of these mines, the Gold Prince and the Dives, each produced over 10,000 tons of gold ore.

Another area of mineralization from which a large amount of copper ore has been mined lies just outside the western boundary of the WSA. The Mascot Mine produced 60,000 tons of ore, and the Elma Mine produced 8,000 tons of ore. Iron ore was also produced.

Other minerals also occur near the area. Uranium occurs just south of the WSA boundary, tungsten occurs along the northern and southern boundaries, manganese occurs in some of the gold and copper workings to the south and west, and fluorspar occurs on the northwest and southern edges of the WSA. In the Dos Cabezas-Teviston District bismuth, beryllium, zinc, marble, and semiprecious gems have been reported. Some beryllium from just inside the WSA's southeast boundary was produced from open cut workings.

The number of mineral occurrences in and around the WSA reveals a strong potential for mineral exploration and development. Though most of the known mineralization occurs just to the south and west of the WSA, mineralization may also occur in the WSA's interior.

Several minerals on the National Defense Stockpile Inventory of Strategic and Critical Materials are found or have been produced near the WSA. These minerals include beryllium, copper, fluorspar, lead, zinc, manganese, silver, and tungsten. Manganese, silver, and tungsten are adequately stockpiled. Manganese and tungsten may occur within the WSA. Silver has been produced in the Buckeye Mine and may occur elsewhere in the western portion of the WSA. The other minerals listed are not adequately stockpiled.

AFFECTED ENVIRONMENT

LIVESTOCK GRAZING

Thirty-one grazing allotments lie within the nine WSAs, and actual livestock use totals 12,208 animal unit months (AUMs). Table 3-7 provides livestock grazing information by WSA and allotment.

Table 3-8 shows the proposed livestock facilities in each allotment and each WSA. Many of these proposals are preliminary, specific locations and designs not having been determined. With the completion of the Upper Gila-San Simon Grazing EIS (BLM, 1978), the Safford District began developing plans for grazing management on each of the 31 grazing allotments within the nine WSAs. Twenty-one of these allotments are operating under signed allotment management plans. Of those 21 AMPs, 14 are totally implemented and the remaining 7 are well on their way to implementation. Of the remaining 10 allotments, AMPs will be written for 6 in the next couple of years. No AMPs are planned for four allotments. These plans identify livestock facilities needed to implement a desired grazing system. Once a particular need is identified, the project is located, engineered, analyzed through an environmental assessment, and built. Through design and the environmental assessment, new livestock facilities may be approved to enhance wilderness values by better protecting the rangeland in its natural condition.

BLM regularly monitors AMPs for their effectiveness, checking the range for changes in condition and trend. AMPs are dynamic documents, and grazing systems, actual use, and livestock management facilities are subject to change in response to resource changes. When such changes are proposed for a WSA, BLM evaluates the effects upon the wilderness values and on the rangeland resource so as to maintain these resources for future use.

TABLE 3-7
GRAZING ALLOTMENTS IN THE WSA'S

WSA	Allotment Name	Management *	Acres in WSA	% in WSA**	Actual Use ***	Grazing System
Needle's Eye	Mescal Mountain	I	8,394	68	588	Rest rotation
	Christmas	I	1,091	12	78	Yearlong
Black Rock	Black Rock	I	1,727	48	108	Rest rotation
	Spenazuma/Holdup Canyon	I	4,180	68	684	Yearlong
	Jackson Mountain	I	2,585	48	571	Yearlong
Fishhooks	Diamond Bar	I	11,243	38	900	Yearlong
	Tom Springs	M	1,774	10	264	Rest rotation
	Day Mine	I	1,996	4	120	Yearlong
Day Mine	Day Mine	I	16,629	30	852	Yearlong
Gila Box	Twin C	I	2,080	20	157	Yearlong
	Gila/County Line/Gila Community	I	9,249	31	719	Rest rotation
	Bull Gap Community	I	2,705	30	439	Yearlong
	Turtle Mountain	I	3,797	18	587	Yearlong
Turtle Mountain	Bonita Creek	I	3,268	11	460	Yearlong
	Bull Gap Community	I	2,054	23	337	Yearlong
	Turtle Mountain	I	12,100	56	1,828	Yearlong
Javelina Peak	Hackberry	I	6,078	3	115	Rest rotation
	Tanque	I	8,745	13	556	Rest rotation
	Badger Den	I	3,047	6	30	Yearlong
Peloncillo Mtns.	Lazy B	I	140	1	22	Rest rotation
	Horseshoe	I	1,050	7	65	Yearlong
	Little Doubtful	M	2,685	87	492	Deferred rotation
	Braidfoot	I	3,135	32	396	Yearlong
	Midway Canyon	I	2,657	46	186	Yearlong
	Joy Valley	I	2,340	4	235	Rest rotation
	Rooster Comb	I	310	1	0	Yearlong
Happy Camp Canyon	Ivanhoe	M	234	4	10	Yearlong
	Happy Camp	I	1,903	83	0	No grazing
	Sheep Canyon	I	2,910	36	327	Yearlong
	Rough Mountain	I	8,007	25	600	Yearlong
	Siphon Canyon	C	734	57	72	Yearlong
	Silverstrike	I	416	4	60	Rest rotation
	Dos Cabezas	I	2,335	19	350	Yearlong
	Nine Mile	C	222	16	0	Yearlong

* I = Improve, M = Maintain, C = Custodial
** Percentage of Allotment in WSA
*** In Animal Unit Months (AUMs) within the WSAs

TABLE 3-8
PROPOSED RANGE IMPROVEMENTS*

WSA	Allotment	Proposed Livestock Facilities
Needle's Eye	Mescal Mountains	fence, 5 miles; road construction, 2.5 miles
Black Rock	Spenazuma/Holdup Canyon	fence, 2 miles; 6 waters (springs, wells, dirt reservoirs);
	Jackson Mountain	road construction, 2 miles; slickrock catchment and storage
Fishhooks	Diamond Bar	fence, 1 mile; 2 dirt reservoirs; spring developments; 2 catchments; road construction, 3 miles;
	Day Mine	dirt reservoir; road construction, 0.5 miles
Day Mine	Day Mine	road construction, 0.5 miles; fence, 1 miles; 3 slickrock catchments; storage tanks; 1 masonry dam; 1 dirt reservoir; stock trail construction
Turtle Mountain	Bullgap Turtle Mountain	pipeline and trough; 3 spring developments; pipeline, 9 miles; storage tanks; corrals; line cabin; trap; fence, 2 miles

*No improvements have been proposed for allotments in Javelina Peak, Peloncillo Mountains, Gila Box and Happy Camp Canyon WSAs.

RECREATION

Outdoor recreation within the EIS area is generally dispersed and widespread, involving little use of developed recreation areas. Because of the varied nature of the WSAs, many different activities occur, some unique to individual WSAs.

The main recreation activity in all WSAs is hunting. Deer, javelina, dove, quail, and waterfowl are hunted in each WSA. Because much hunting depends on vehicle access and the presence of water, however, portions of each WSA may receive little to no hunting pressure.

Another activity occurring in all WSAs is off-road vehicle (ORV) use. Because of the rugged topography and poor condition of many of the roads leading to the WSAs, ORVs are often needed for gaining access to the WSAs. ORV use is closely associated with other recreation within the WSAs: fishing, camping, picnicking, and rock collecting. ORV use for its own sake also occurs.

Many activities occur in some but not necessarily all of the WSAs. The following activities are unique to individual WSAs.

Needle's Eye — fishing on the Gila River.

Black Rock — hiking and backpacking within and through the WSA to the Coronado National Forest.

Gila Box — fishing, floatboating, hiking, and ORV use on the Gila and San Francisco Rivers through the WSA.

Turtle Mt. — hiking the historic Safford-Morenci Trail.

Javelina Peak — ORV use on the dunes in the southern portion of the WSA.

Peloncillo Mtns. and Happy Camp Canyon — rock collecting.

The WSAs are also suitable for a variety of other primitive recreation activities: horseback riding, hiking, backpacking, camping, rock scrambling and climbing, sightseeing, photography, and environmental study.

AFFECTED ENVIRONMENT

LAND USE

This section discusses such issues as land ownership, withdrawals, and rights-of-way that might conflict with wilderness management. The EIS area's major economic land use, livestock grazing, is common to all WSAs and is considered in a previous section of Chapter 3.

NEEDLE'S EYE

Needle's Eye WSA contains 9,485 acres of public land with no state or private inholdings. A 44-kv transmission line crosses the WSA, for which BLM granted a 100-foot-wide right-of-way. Maintenance crews gain access to this line by horseback or helicopter. Four overlapping withdrawals, all along the Gila River, exist in this WSA. Three of these withdrawals are held by the U.S. Geological Survey for possible waterpower or reservoir sites, but dams have not been authorized. The fourth withdrawal is held by the San Carlos Irrigation Project for watershed protection.

BLACK ROCK

Black Rock WSA contains 8,492 acres of public land with no state or private inholdings but 545 acres with non-federal minerals. The main access to the WSA and adjacent private land is the Black Rock Road, which crosses a portion of the San Carlos Indian Reservation. The tribe could block this access by denying the use of the reservation portion of this road.

FISHHOOKS

Fishhooks WSA contains 15,013 acres of public land with no private inholdings but a 202-acre state inholding. This inholding has access via a vehicle way, but the grazing allottee has proposed improving the access.

DAY MINE

Day Mine WSA contains 16,629 acres of public land, no private inholdings, and one state inholding totaling 40 acres. This parcel is accessed by a vehicle way passable only by four-wheel drive vehicles.

GILA BOX

Gila Box WSA contains 17,831 acres of public land with no state inholdings and an 80-acre private inholding that has no access.

A portion (5,220 acres) of the land covered by a Corps of Engineers (COE) withdrawal application lies within the WSA. This application segregates the land from appropriation under the land and mineral laws for the proposed Camelsback flood control dam and reservoir.

TURTLE MOUNTAIN

Turtle Mountain WSA contains 17,422 acres of public land, and includes three private inholdings (285 acres) and a state inholding (640 acres). In addition, small portions of two rights-of-way, one for a transmission line and the other for a pipeline, lie along the northern edge of the WSA.

JAVELINA PEAK

Javelina Peak WSA contains 17,870 acres of public land with no state inholdings, one 40-acre private inholding, and 1,650 acres with non-federal minerals. The private inholding has no access but lies within 0.25 miles of a road. Parts of the northwest boundary are formed by a 345-kv powerline right-of-way.

PELONCILLO MOUNTAINS

Peloncillo Mountains WSA contains 12,317 acres of public land with no state or private inholdings but 760 acres with non-federal minerals. The WSA straddles the state line with 8,256 acres in Arizona and 4,061 acres in New Mexico.

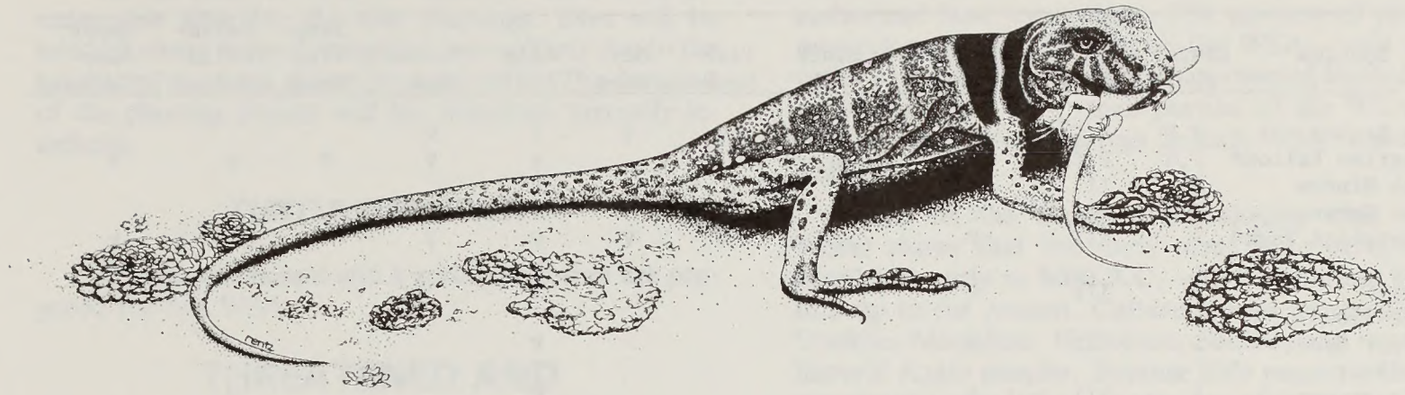
HAPPY CAMP CANYON

Happy Camp Canyon WSA contains 16,761 acres of public land with no state inholdings, four private inholdings (258 acres) that have no access, and 576 acres with non-federal minerals. A 960-acre parcel of private land intrudes into and is mostly surrounded by the WSA and is accessed by a cherrystem road.

WILDLIFE

The WSAs provide habitat for a variety of game and nongame wildlife, including mammals, birds, amphibians, reptiles, and fish. Species are typical of those associated with the desert shrub, mountain shrub, grassland, and riparian habitat types of southeastern Arizona. Some of the more common species are mule deer, white-tailed deer, javelina, cottontail rabbit, black-tailed jackrabbit, bobcat, coyote, Gambel's quail, mourning dove, white-winged dove, and various migratory waterfowl.

WILDLIFE



Protected wildlife species occur in all WSAs. Table 3-9 lists these species, their status, and where they are found.

All the WSAs are included in completed wildlife habitat management plans (HMPs). The lands in the Needle's Eye and Black Rock WSAs are included in the Mescal-Dripping Springs HMP, the Happy Camp Canyon WSA is included in the Dos Cabezas HMP, and the other six WSAs are in the Gila-Peloncillo HMP. These HMPs were prepared in cooperation with the Arizona Game and Fish Department and, in the case of the Peloncillo Mountains WSA, with the New Mexico Department of Game and Fish. These HMPs have proposed a variety of measures to protect and enhance wildlife habitat. These measures include fencing of riparian areas and the building of water catchments, small storage tanks, drinkers, and spring developments.

Of special interest in all the WSAs is riparian habitat. Riparian vegetation in all WSAs is well below potential. Reproduction of the broadleaf riparian species (cottonwood, willow, sycamore, ash, and walnut) is severely limited by cattle eating all seedlings along the rivers. The Gila and San Francisco Rivers (Gila Box WSA) have a high potential for producing vast stands of broadleaf riparian trees, but few if any broadleaf riparian trees are currently regenerating. The other WSAs have smaller but no less significant broadleaf riparian areas that are also not regenerating. All potential broadleaf riparian areas are currently showing a trend toward eventual replacement by riparian scrub species such as mesquite and saltcedar. Maintenance and improvement of the broadleaf riparian component are of crucial importance in providing habitat diversity in the riverine areas and have received special attention in the HMPs. The HMPs are directed toward efforts to restore and re-establish these species to insure maximum acreage of this excellent wildlife habitat.

The following sections discuss species, habitats, and projects in the WSAs. No projects are planned in Javelina Peak, Peloncillo Mountains, or Happy Camp Canyon WSAs.

NEEDLE'S EYE

This WSA has a fisheries resource in the Gila River that includes various catfish, carp, largemouth bass, and green sunfish. Moreover, BLM and the Arizona Game and Fish Department (AG&FD) plan to introduce the federally listed Gila topminnow, desert pupfish, and Gila mountain sucker into Mescal Creek, its springs, and other springs in the WSA. Riparian exclosures are planned along the Gila River and Mescal Creek. Planting of cottonwoods and possible saltcedar control are planned in conjunction with the exclosures. The WSA is also an important wintering area for bald eagles.

BLACK ROCK

A 40-acre riparian exclosure, a water catchment, and a stock water modification are proposed for Black Rock WSA.

FISHHOOKS

Riparian exclosures are proposed for Lower Fishhook Canyon.

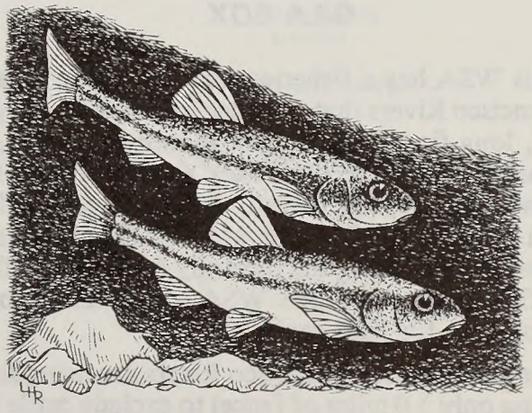


TABLE 3-9
THREATENED, ENDANGERED, AND SENSITIVE WILDLIFE

Species	Listed By 1/	Category 2/	Needle's Eye 3/	Black Rock	Fishhooks	Day Mine	Gila Box	Turtle Mtn.	Javelina Peak	Peloncillo Mtns.	Happy Camp Canyon
Bald Eagle*	F,S	E,II	V		V	V	V	V			
Peregrine Falcon*	F,S	E,II	P	V			V	V	P	P	P
Loach Minnow	S	II					V				
Snowy Egret	S	III	P				V				
Zone-tailed Hawk*	S	III	V	V	V	V	V	V		V	V
Osprey*	S	III	P				V				
Black-crowned Night Heron*	S	III	P				V				
Beardless Flycatcher	S	III	P				V			P	
Black Hawk*	S	III	V		V	V	V				
Black-bellied Whistling Duck*	S	III					V				
Desert Bighorn Sheep*	S	III	V	P							
Gila Monster*	S	III	V	V	V	V	V	V	V	V	V
Razorback Sucker	S	III					V				
Misssissippi Kite*	S	IV	P								
Coati*	S	IV	V	V	V	V	V			P	V
Arizona Mountain Kingsnake*	S	IV			V	V	P			V	P
Twin-spotted Rattlesnake*	S	IV									V
Rock Rattlesnake*	S	IV									P

1/ F = Fish and Wildlife Service, S = Arizona Game and Fish Department.
2/ E = Endangered, II = Species or subspecies in danger of being eliminated from Arizona, III = Species or subspecies whose status in Arizona may be in jeopardy in the foreseeable future, IV = Species or subspecies of special interest because of limited distribution in Arizona.
3/ V = Verified, P = Probable.
* Species will be enhanced by wilderness designation.

DAY MINE

Riparian exclosures are proposed for the Left Fork of Markham Creek, which has permament water that supports native fish (long-finned dace). In addition, existing springs and seeps are proposed for fencing.

GILA BOX

This WSA has a fisheries resource in the Gila and San Francisco Rivers that includes various catfish, green sunfish, long-finned dace, Gila mountain sucker, and razorback sucker. The razorback sucker, a state-listed threatened species, has recently been reintroduced into the Gila River by AG&FD. BLM and AG&FD have also proposed reintroducing the federally listed woundfin into the Gila River. Gila Box WSA is also an important wintering area for bald eagles.

The Gila and San Francisco Rivers are being fenced (requiring only 5.0 miles of fence) to exclude cattle from the canyon bottoms to protect and improve the riparian habitat. In addition, cottonwood and willow plantings are proposed, and saltcedar may be controlled. Vehicular access is proposed to install and maintain the plantings.

BLM proposes planting broadleaf riparian trees along the Gila and San Francisco Rivers. The trees will be planted in groups of 15 to 20 in a concentrated area and will be watered with a drip system fed by a 400-gallon trough. Each tree will be fenced with three fenceposts and hogwire as protection from cattle and beavers. A portable pump will be used to fill the trough every 2 weeks from the spring planting to the end of the growing season in the fall. After one growing season, the seedlings will have rooted down to the water table and will no longer need drip irrigation. The drip system will be moved to a new location the next growing season, and the process will be repeated. Several trough/drip systems can be operated each growing season if BLM has enough workers to ensure that the troughs are regularly filled.

The 18 miles of river (36 miles of bank) offer innumerable sites for the tree plantings. Sites will be selected where natural revegetation is unlikely due to the height of the bank above the water table. The duration of the planting project will be, therefore, virtually indefinite.

TURTLE MOUNTAIN

A water catchment and a spring exclosure are proposed for this WSA.

THREATENED AND ENDANGERED PLANTS

No federally listed threatened or endangered plants have been found in any of the WSAs. One listed species (Table 3-10), however, may occur in the Needle's Eye WSA. Five species under review by the Fish and Wildlife Service (FWS) for possible listing as threatened or endangered have been found (FWS, 1980). One other species under review may also occur. Plants listed by the State of Arizona and those listed for review by FWS are placed in the sensitive category by BLM. BLM policy gives sensitive plants the same management protection as federally listed plants.

CULTURAL RESOURCES

Cultural resource information for the WSAs has been collected from literature/records search inventories (Professional Analysts, in preparation), field sampling inventories (Geronimo Class II Inventory: Kinkade, 1975; and BLM, 1978), and intensive field inventories (Class III) for BLM projects and BLM authorized land use actions. The amount of previous research varies greatly among the WSAs, with inventories in most WSAs having either covered limited areas or concentrated on a small portion of the WSA. The number of previous surveys in each WSA is shown in Table 3-11.

Data on the known archaeological sites of the WSAs shows that the study areas were occupied by peoples as early as 8000 B.C. with intermittent habitation up to the present. Culture groups represented are Cochise, Mogollon, Hohokam, Salado, and numerous historic Anglo peoples. Because little research has been completed in the WSAs, the history of the study areas is poorly known.

Prehistoric (pre A.D. 1700) archaeological remains include permament habitation sites, temporary camps, sherd and lithic scatters (remains of ceramic vessels and stone tools), cave sites, cliff dwellings, food storage features, rock art sites, and single isolated artifacts. Historic (post A.D. 1700) archaeological remains consist primarily of ranching and mining sites but include a trail used for commerce.

Not enough data exists to predict the distribution, density, or significance of unknown archaeological resources in the WSAs, but some site locations and physiographic landforms have been tentatively correlated. Land next to rivers and major streams and areas with numerous caves and cliff overhangs are expected to have a high prehistoric site density. Long-term habitation sites tend to occur in higher densities along rivers. Historic mining sites tend to occur in greater numbers in high mountain areas. These key areas in each WSA and the expected site densities are shown in Table 3-11.

TABLE 3-10
THREATENED AND ENDANGERED PLANTS

Scientific Name	Common Name	FWS Listed Species	FWS Candidate Species	WSAs Involved
Cereus greggii	nightblooming cereus		P	Needle's Eye Javelina Peak
Echinocereus ledingii	ncn*		V	Black Rock Happy Camp Canyon
Echinocereus triglochidiatus var. arizonicus	Arizona hedgehog cactus	P		Needle's Eye
Ferocactus eastwoodiae	golden barrel cactus		V	Needle's Eye
Graptopetalum rusbyi	ncn		V	Black Rock
Plummera ambigens	ncn		V	Black Rock
Plummera floribunda	ncn		V	Happy Camp Canyon

*ncn = no common name
P = possible, V = verified

TABLE 3-11
CULTURAL RESOURCES

WSA	AR Sites	HR Sites	NRQ	Surveys	Site Potential	Resource Significance	Key Areas
Needle's Eye	2	0	1 AR	1	AR - Mod-High	Mod-High	Gila River, major tributaries, springs
Black Rock	2	2	1 AR	10	AR - High HS - High	High	Black Rock Wash, major tributaries
Fishhooks	13	0	10 AR	4	AR - High HS - Low	AR-High	Major washes, cliffs
Day Mine	1	0	1 AR	10	AR - Mod HS - Low	Moderate	Major washes, cliffs
Gila Box	8	6	2 AR 2 HS	6	AR - High HS - Mod	High	Gila and San Francisco Rivers, Eagle Creek vicinity
Turtle Mountain	2	2	1 AR 1 HS	9	AR - Low HS - Low	Low	Major washes, springs, cliffs
Javelina Peak	3	0	2 AR	2	AR - Mod HS - Low	Mod	Mountain cliffs
Peloncillo Mtns.	10	0	1 AR	5	AR - High HS - Low	High	Major canyons, cliffs
Happy Camp Canyon	5	0	1 AR	0	AR - High HS - Mod	High	AR-base of mountains, cliffs HS-mountains

AR = Prehistoric site (pre AD 1700)
HS = Historic site (post AD 1700)
NRQ = National Register quality sites
Key Areas = Significant, critical, or sensitive areas

The number of known cultural resource sites believed to be eligible for listing on the National Register of Historic Places is also shown in Table 3-11. Fishhooks and Gila Box WSAs have the highest number of such sites. Peloncillo Mountains WSA has many known prehistoric sites, but only one appears to qualify for nomination to the National Register.

The condition of cultural resources ranges from poor to good, but most sites have been disturbed by natural or human actions. The most common impacts have resulted from weathering and erosion, livestock grazing, and vandalism.

PALEONTOLOGICAL RESOURCES

Two WSAs have known paleontological (fossil) resources. For the seven WSAs that have no known fossils, the potential for finding fossils is unknown. Needle's Eye WSA has numerous invertebrate fossils, notably fusulinids and triticites, throughout the area's limestone beds. These remains have not been studied extensively and are not thought to be significant or unique. Javelina Peak WSA has two known vertebrate fossil sites, the Whitlock Hills site and the Flowing Well site. The fossils of both sites date from late Pliocene times and include primitive horses, camels, and tortoises. A high potential exists for other fossils to occur in this WSA.

VISUAL RESOURCES

Visual resource management (VRM) classes have been established for all WSAs in the EIS area through BLM's land management planning process. The VRM classes provide a basis for analyzing the impacts of proposed projects on visual resources. After analysis, mitigating measures can be applied to bring these projects in line with the acceptable visual contrast limits of the VRM class.

The five VRM classes and their objectives and required management are as follows:

Class I — Class I provides primarily for natural ecological changes only. It is applied to primitive areas, some natural areas, and similar areas where management activities are to be restricted.

Class II — Changes in any of the basic elements (form, line, color, or texture) caused by a management activity should not be evident in the characteristic landscape.

Class III — Changes caused by a management activity may be evident in the characteristic landscape, but the changes should remain subordinate to the visual strength of the existing character.

Class IV — Changes may subordinate the original composition and character but must reflect what could be a natural occurrence within the characteristic landscape.

Class V — Change is needed. This class applies to areas where the natural character has been disturbed to a point where rehabilitation is needed to bring it back into character with the surrounding countryside.

During the wilderness review, all nine WSAs are being managed as VRM Class II areas unless previously identified as Class I. The WSAs designated as wilderness will be managed under the VRM Class I objectives. If a WSA is not designated wilderness, the lands involved will return to and be managed under the VRM classes as shown in Table 3-12.

TABLE 3-12
VRM CLASSIFICATION BEFORE WILDERNESS REVIEW

WSA	WSA Acres	VRM Class Acres* Class I	Class III	Class IV
Needle's Eye	9,485	9,485	0	0
Black Rock	8,492	8,492	0	0
Fishhooks	15,013	6,730	0	8,283
Day Mine	16,629	1,630	0	14,999
Gila Box	17,831	15,667	0	2,164
Turtle Mountain	17,422	3,620	0	13,802
Javelina Peak	17,870	8,560	0	9,310
Peloncillo Mountains	12,317	5,600	0	6,717
Happy Camp Canyon	16,761	5,104	2,120	9,537
Total	131,820	64,888	2,120	64,812

* None of the WSAs were managed as Class II or V before the wilderness review.

Upper Fishhook Canyon in Fishhooks WSA crosses the center of the above photo. This highly natural area includes the most rugged portion of the Gila Mountain and offers outstanding opportunities for solitude and many forms of primitive recreation.

AFFECTED ENVIRONMENT

FIRE MANAGEMENT

Few fires have recently occurred in the EIS area (less than five to seven fires per WSA in the last 25 years). Fires seldom burn more than 30 acres and more often than not burn themselves out before having to be suppressed. The size and behavior of most fires depends largely on the amount of precipitation received and the time of year it is received. Annual grasses, the primary source of wildfire fuel, grow as a result of above-average precipitation during the winter and spring.

The Safford District operates under a modified fire suppression plan (BLM, 1982a), under which fire suppression may vary depending on the difficulty of fire control and the values threatened. The District attempts to keep resource damage from fire suppression to a minimum through the use of retardant drops, helitack crews, ground pumpers, and fire crews.

Stands of pinyon and juniper grow in several canyons in Fishhooks WSA.

ECONOMIC CONDITIONS

This section discusses economic conditions within Gila, Graham, and Greenlee Counties, Arizona — the area expected to be most heavily influenced by wilderness designation. All but one of the WSAs lie within a 50-mile radius of Safford, the seat of Graham County and a trade center for eastern Arizona and western New Mexico. The remaining WSA lies relatively close to Globe, seat of Gila County and a mining and tourist center. These communities, the largest in the area, generally lie near the point of destination for visitors from outside the area.

GILA COUNTY

Employment in Gila County, including proprietorship and wage and salary (both full and part time), totaled 13,392 in 1979. This group has a total personal income of $212 million. Salaried non-farm workers represent 91 percent of the labor force (12,207). Mining is the dominant industry, employing 38 percent of the salaried workers in mineral extraction (2,413) and manufacturing (copper processing — 2,184). In 1979 mining contributed $115.5 million to the economy. State and local government are the next most important employers, providing 17 percent of salaried non-farm jobs. The services and retail trade sectors rank fourth and fifth in importance, employing 1,995 and 1,640 workers respectively and contributing $15.8 million and $15.5 million of income respectively to the county. The remaining employment sectors — transportation and utilities, construction, federal employment, finance and real estate, wholesale trade, and agricultural services — account for 16 percent of the workforce's paid wages.

Agricultural proprietorships totaled 140 and 1 percent of the total county employment and earned slightly over $6 million (U.S. Dept. of Commerce, Bureau of Economic Analysis, 1981). Out of these 140 operations, 107 were classified as livestock producers under the standard industrial code (U.S. Bureau of the Census, 1981a). To be classified as a producer, over 50 percent of gross sales must come from the sale of livestock. Collectively these producers run 18,000 animal units.

Economically, Gila County is slightly less well off than Arizona as a whole. County per capita income in 1979 amounted to $7,387 or $562 below the state average. This same relationship has remained relatively consistent over the past 10 years (Valley National Bank of Arizona, 1976; 1981). Unemployment from 1970 to 1981 averaged 7.8 percent as compared to the state average of 6.2 percent. The unemployment rate between the end of 1981 and the present has ranged from 11 to 35 percent, whereas the state unemployment has ranged from 7.6 to 10.6 percent (Arizona Dept. of Economic Security, 1970-1983). The high dependence of the economy on a single industry (mining) has contributed significantly to the high unemployment.

GRAHAM COUNTY

Total full and part-time employment for Graham County in 1979 amounted to 5,960, and associated personal income slightly exceeded $73 million. About 81 percent of all workers were employed in non-farm wage and salary jobs. State and local government is the county's main employer, providing jobs for 1,482 (30.5 percent) salaried workers. Retail trade and services are the second and third most important employers with 1,096 and 770 employees respectively. These workers earned

$11.3 million and $7.1 million respectively. The remaining industries in order of importance are construction, manufacturing, federal employment, mining, wholesale trade, transportation and utilities, finance and real estate, and agricultural services. These industries make up slightly more than 31 percent of the salaried employment opportunities in the county.

Graham County had 359 farm proprietorships in 1979, involving 6 percent of all the county's employment. Personal income for this sector amounted to $10.5 million (U.S. Dept. of Commerce, Bureau of Economic Analysis, 1981). The 1978 Census of Agriculture (Bureau of the Census, 1981a) classed 105 Graham County farms under the standard code of livestock. Over 50 percent of the sales of these farms involved livestock. These ranchers ran 19,000 animal units.

Contrasting the economic climate of Graham County with that of Arizona shows that on the average the county is significantly less well off than the state. In 1979, Graham County's per capita income was $5,630 — $2,319 below the state average. County per capita income averaged $1,460 below the state average from 1970 to 1979 (Valley National Bank of Arizona, 1976; 1981).

Between 1970 and 1981 unemployment in Graham County averaged 8.6 percent, 2.4 percent higher than the state average for the same period. Unemployment from the end of 1981 to the present has ranged from 12 to 27 percent (Arizona Dept. of Economic Security, 1970-1983). Although Graham County has little mining, it serves as a trade center for mining areas and is also suffering from unemployment in mining.

GREENLEE COUNTY

Employment in Greenlee County totaled 4,439 in 1979, contributing slightly over $105 million in income. Non-farm wage and salary employment made up 95 percent of the total work force. The primary employment stimulus is mineral based, including both mining and manufacturing (copper processing). Collectively these two sectors employ 66 percent of the salaried employees and earn $81.1 million in income. State and local government ranks second by number of employed and third by income contributions, employing 12.9 percent of the county's salaried workers. Retail trade employs 7.9 percent of the salaried workers, and the services sector employs 4.5 percent. These two sectors earn $4.5 million in personal income ($3.1 million and $1.4 million respectively).

Construction, transportation and utilities, federal employment, finance and real estate, wholesale trade, and agricultural services are the remaining sectors in order of importance for non-farm wage and salary workers. In 1979 these sectors contributed slightly less than 9 percent of the remaining employment. Farm proprietors represented 3.9 percent (171) of the total employment (U.S. Dept. of Commerce, Bureau of Economic Analysis, 1981). Seventy-four farms were classed as livestock under the standard industrial code (U.S. Bureau of the Census, 1981a). These operators ran 8,000 animal units.

Over the long term, Greenlee County has been better off economically than Arizona as a whole. In 1979 personal per capita income for the county was $8,720 as compared to $7,949 for the state. The difference between average incomes for the county and the state between 1970 and 1979, however, was less than $50 (Valley National Bank of Arizona, 1976; 1981).

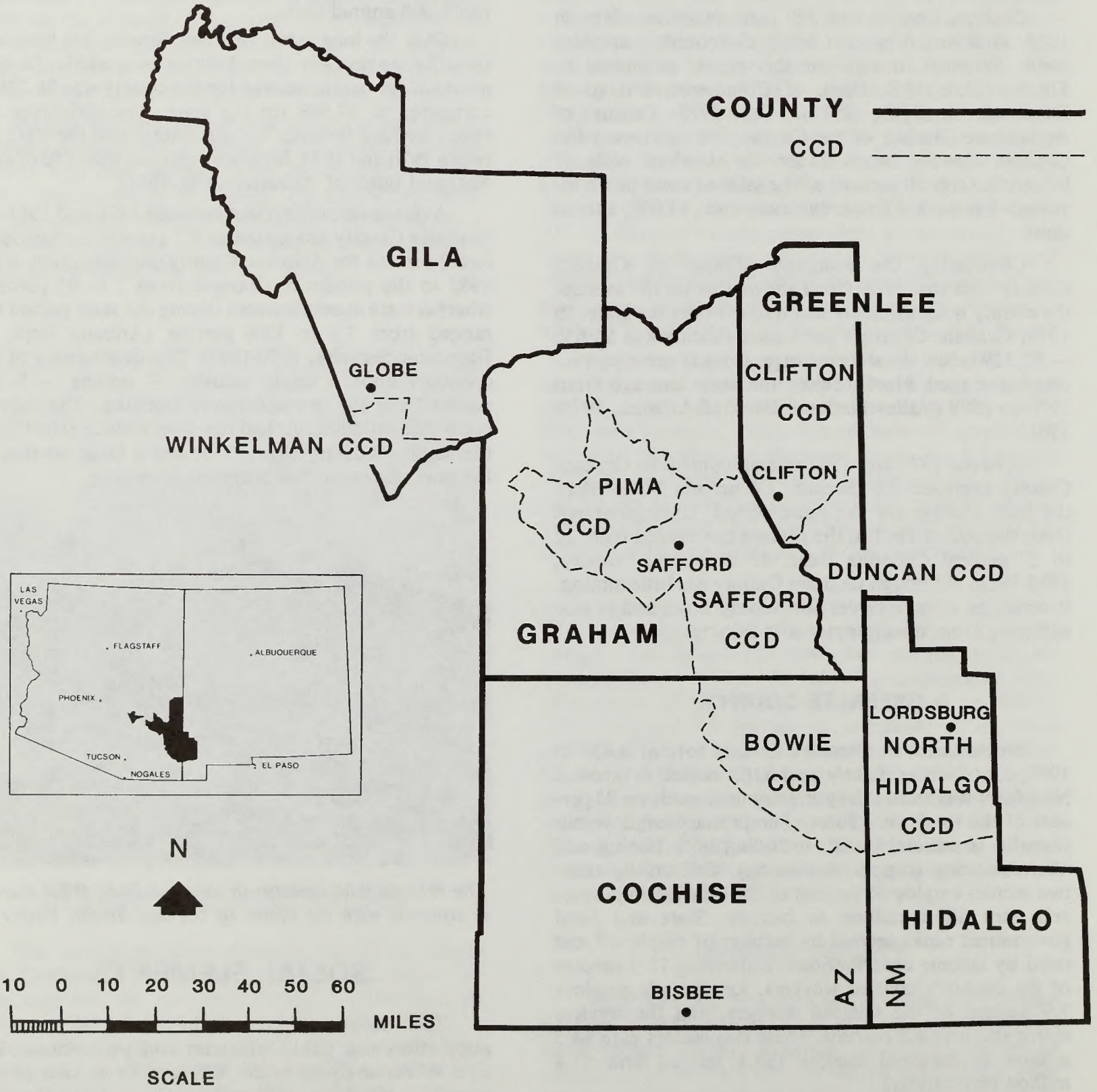
Average unemployment between 1970 and 1981 for Greenlee County amounted to 5.2 percent as compared to 6.2 percent for Arizona. County unemployment from 1982 to the present has ranged from 7 to 63 percent, whereas state unemployment during the same period has ranged from 7.6 to 10.6 percent (Arizona Dept. of Economic Security, 1970-1983). The dependency of the economy upon a single industry — mining — is apparent from the unemployment statistics. The current economic situation has had the most serious effect upon the copper industry since 1973, and a large portion of the unemployment has occurred in mining.

The Whitlock Mountains in Javelina Peak WSA starkly contrast with the plains of the San Simon Valley.

SOCIAL ELEMENTS

This section discusses the social elements of population and public attitudes and perceptions. The nine WSAs analyzed in this EIS area lie in parts of five counties (Graham, Greenlee, Gila, and Cochise, Arizona and Hidalgo, New Mexico) and seven census county divisions (CCDs). Table 3-13 shows WSAs by county and CCD. Map 3-1 shows the locations of the counties and the CCDs.

EIS AREA COUNTIES AND CCDS



MAP 3-1

SOCIAL ELEMENTS

TABLE 3-13
WSA LOCATION BY COUNTY AND CENSUS COUNTY DIVISION

WSA	County	CCD
Needle's Eye	Gila	Winkelman
Black Rock	Graham	Pima
Fishhooks	Graham	Pima
Day Mine	Graham	Pima
Gila Box	Graham	Safford
	Greenlee	Clifton
Turtle Mountain	Graham	Safford
	Greenlee	Clifton
Javelina Peak	Graham	Safford
Peloncillo Mountains	Graham	Safford
	Greenlee	Duncan
	Cochise	Bowie
	Hidalgo	North Hidalgo
Happy Camp Canyon	Cochise	Bowie

The social elements addressed in this section are discussed on the CCD, county, and state levels. BLM acquired information on public attitudes and perceptions through interviews of residents of southeastern Arizona and southwestern New Mexico.

POPULATION

Table 3-14 shows population data by CCD and county. Data is displayed for the years 1970 and 1980 and projected to the year 2000. No projections have been made for the North Hidalgo CCD or Hidalgo County, New Mexico.

PUBLIC ATTITUDES AND PERCEPTIONS

BLM obtained most of the information on public attitudes and perceptions through interviews with CCD residents. Residents generally believe that enough wilderness already exists and that more is not needed. They are particularly concerned about conflicts with mineral development. Moreover, they do not want an influx of outsiders to "their lands" and can see no real benefits to be derived from wilderness.

Winkelman CCD residents oppose wilderness, fearing impacts to mining. They are highly interested in outdoor recreation, especially ORV use and picnicking, but they are not wilderness oriented.

Residents of the Pima CCD revealed no real position for or against more wilderness. They feel that decisions will be made regardless of their ideas. They are skeptical of the land management policies of BLM and the Forest Service and feel that in the decisionmaking process these agencies ignore the knowledge and experience of residents of affected areas.

Residents of the Safford and Clifton CCDs feel that enough wilderness exists, that no more is needed, and that wilderness use is limited to a few individuals. Although they did not comment on specific WSAs, they feel that mineral resources should remain open to mining. They had trouble associating any benefits with

TABLE 3-14
POPULATION BY COUNTY AND CENSUS COUNTY DIVISION

CENSUS COUNTY DIVISIONS

CCD		1970	1980	Projected 2000*
Winkelman	(Gila)	2,518	2,594	3,525
Pima	(Graham)	2,243	2,783	3,721
Safford	(Graham)	11,341	15,986	21,373
Clifton	(Greenlee)	8,298	8,872	11,196
Duncan	(Greenlee)	2,032	2,534	3,198
Bowie	(Cochise)	1,273	1,469	2,132
North Hidalgo	(Hidalgo)	4,368	4,714	No projection

*Assumes same population distribution throughout the county.

COUNTY

County		1970	1980	Projected 2000
Gila	AZ	29,255	37,080	50,400
Graham	AZ	16,578	22,862	30,600
Greenlee	AZ	10,300	11,406	14,400
Cochise	AZ	61,918	85,686	124,300
Hidalgo	NM	4,734	6,049	No projection

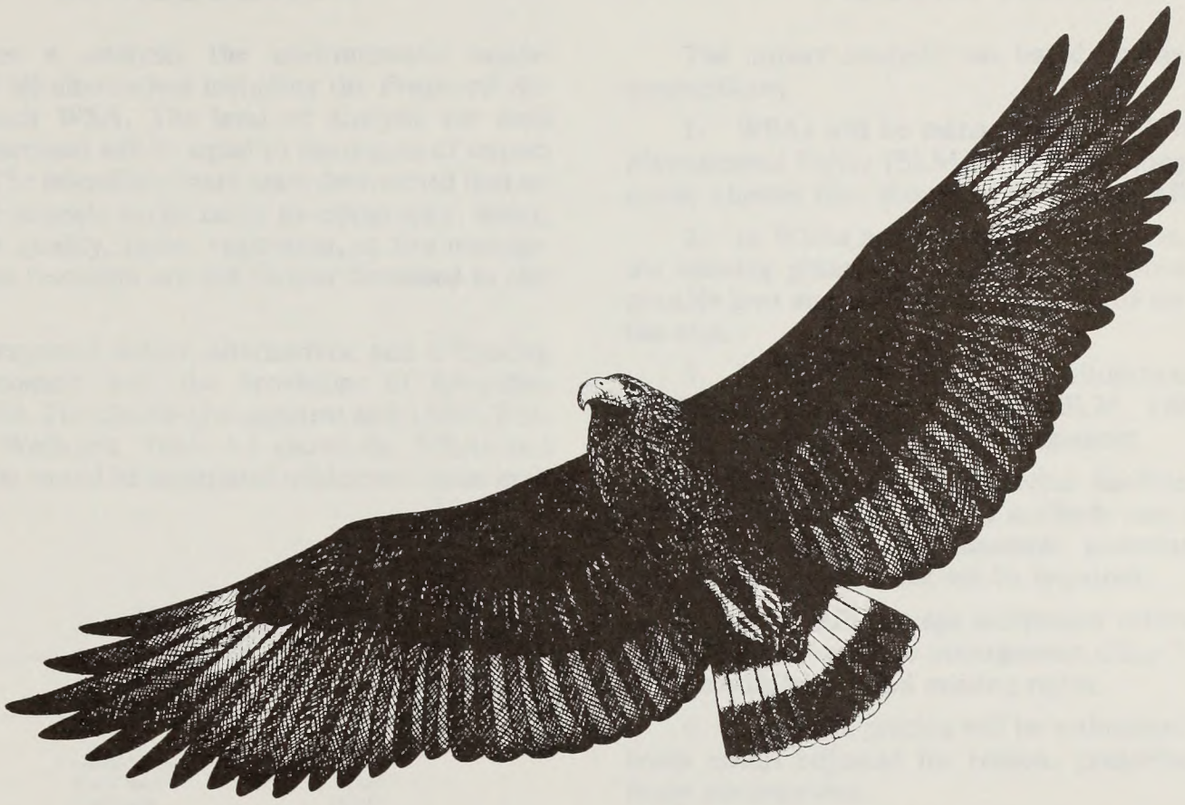
Source: U.S. Bureau of the Census, 1971; 1981b.

additional wilderness and questioned BLM's ability to manage wilderness areas. They were also aware of the costs of wilderness review and management.

Residents of the Bowie CCD feel that adequate wilderness already exists. They see no benefits of more wilderness and feel that wilderness designation might lead to problems. In interviews they stated that they did not want an influx of outsiders to "their lands."

Arizona residents perceive the Safford District's WSAs in three general ways: 1) most don't know specifically about the WSAs, 2) some support wilderness designation, and 3) some oppose wilderness designation. Residents of the CCDs involved do not generally support additional wilderness, but attitudes in Tucson and Phoenix are more balanced between support for and opposition to wilderness.

A region has been established for consideration of the social elements. The region is defined by Nogales, Arizona on the southwest; Flagstaff, Arizona on the northwest; Albuquerque, New Mexico on the northeast; El Paso, Texas on the southeast; with the interstate highways and international border connecting the cities. Any assessment of the perceptions of regional residents concerning the Safford District and its WSAs must consider the many national forests, parks, and wilderness areas that already exist within the region. This assessment suggests that the region's residents may not have specific knowledge or interest in the Safford District WSAs. As in the State of Arizona, attitudes of the residents of the region toward wilderness designation lie on the broad spectrum from support to opposition.



Chapter 4

ENVIRONMENTAL CONSEQUENCES

CONSEQUENCES

ENVIRONMENTAL

Chapter 4

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

Chapter 4 analyzes the environmental consequences of all alternatives including the *Proposed Action* for each WSA. The level of analysis for each resource discussed will be equal to the degree of impact expected. The interdisciplinary team determined that no measurable impacts would occur to topography, water, climate, air quality, noise, vegetation, or fire management. These resources are not further discussed in this chapter.

The *Proposed Action,* alternatives, and mitigating measures comply with the provisions of Executive Orders 11988, Floodplain Management and 11990, Protection of Wetlands. Table 4-1 shows the WSAs and acreages that would be designated wilderness under each alternative.

TABLE 4-1
WSA'S BY ALTERNATIVE*

Alternatives	WSA	Total Acres Public Land Recommended for Wilderness Designation
All Wilderness	Needle's Eye	9,485
	Black Rock	8,492
	Fishhooks	15,013
	Day Mine	16,629
	Gila Box	17,831
	Turtle Mountain	17,422
	Javelina Peak	17,870
	Peloncillo Mountains	12,317
	Happy Camp Canyon	16,761
	Total	131,820
Enhanced Wilderness	Needle's Eye	9,485
	Black Rock	7,614
	Fishhooks	15,013
	Day Mine	11,870
	Gila Box	15,272
	Turtle Mountain	9,104
	Javelina Peak	7,035
	Peloncillo Mountains	10,418
	Happy Camp Canyon	12,807
	Total	98,618
Moderate Wilderness	Needle's Eye	8,970
	Black Rock	6,590
	Fishhooks	10,083
	Day Mine	0
	Gila Box	10,192
	Turtle Mountain	0
	Javelina Peak	0
	Peloncillo Mountains	0
	Happy Camp Canyon	9,238
	Total	45,073
Proposed Action	Needle's Eye	8,970
	Black Rock	6,590
	Fishhooks	10,083
	Day Mine	0
	Gila Box	0
	Turtle Mountain	0
	Javelina Peak	0
	Peloncillo Mountains	0
	Happy Camp Canyon	9,238
	Total	34,881

*The No Wilderness alternative recommends no parts of any of the WSAs for wilderness designation.

ASSUMPTIONS

The impact analysis was based on the following assumptions:

1. WSAs will be managed under BLM's Interim Management Policy (BLM, 1979) until Congress determines whether they should be designated wilderness.

2. In WSAs not designated wilderness, BLM will use existing planning documents, consistent with applicable laws and regulations, as the basis for managing the area.

3. In WSAs designated wilderness, BLM's Wilderness Management Policy (BLM, 1981) will be used as the basis for future management.

4. Range, wildlife, and other facilities installed and maintained by customary methods may be allowed when site-specific environmental assessment shows wilderness resources will not be impaired.

5. BLM will manage designated wilderness areas to meet visual resource management Class I objectives while considering valid existing rights.

6. Livestock grazing will be maintained at present levels unless adjusted for reasons prescribed through range management.

7. Camelsback Dam or an alternative will not be built in or near Gila Box WSA. The Army Corps of Engineers and the Bureau of Reclamation are jointly studying the upper Gila River Basin for flood control and water supply. Although the Camelsback Dam site has been determined unsuitable for water storage, it is still being considered for flood control. If current studies determine the site to be suitable for flood control, more studies such as design and cost will be conducted to select the preferred alternative. The preferred alternative will be selected in 1986. Without knowing if a structure will be built, what type of structure it will be, or where it will be built, environmental consequences cannot be assessed.

8. Wilderness areas will be designated after December 31, 1983.

9. Any area designated wilderness will be withdrawn from all form of appropriation under the mining laws as of the date of designation, subject to valid existing rights.

10. All state or private land inholdings or nonfederal minerals within an area designated wilderness may be acquired by BLM through purchase or exchange if the state or private land owners agree to the acquisition. In any event, BLM cannot block access to such inholdings or minerals.

11. BLM will not recommend reclassification of air quality standards for wilderness areas from the existing Class II to the more restrictive Class I.

12. BLM will have adequate funds and personnel to manage areas designated wilderness.

IMPACTS TO WILDERNESS VALUES

Wilderness areas would be devoted to the public purposes of recreation and scientific, educational, and conservation use. Prohibiting land uses incompatible with wilderness preservation would ensure protection of existing natural qualities and roadless character and would provide continued opportunities for solitude and primitive and unconfined recreation. Wilderness designation would preserve special features such as wildlife or cultural values and ensure multiple resource benefits, including preserving natural ecosystems, extending visual resources management (VRM) Class I status to all areas, and reducing disturbances to wildlife and cultural resources through ORV closures. The relative permanency of a wilderness designation would further enhance these benefits.

Adding any or all of the WSAs to the National Wilderness Preservation System (NWPS) would only slightly contribute to better geographic distribution of wilderness areas in Arizona, New Mexico, or the region. Administratively endorsed wilderness areas further enhance the current distribution. The addition of any or all of the WSAs to the NWPS would not greatly enhance opportunities for solitude or primitive recreation within 5 hours driving time of Phoenix and Tucson, Arizona and El Paso, Texas since several wilderness areas already exist near each of these cities.

Following is an analysis of the impacts to wilderness values by WSA and alternative.

NEEDLE'S EYE, AZ-4-1A (MAP 1)

All Wilderness and Enhanced Wilderness. These alternatives would designate as wilderness all 9,485 acres of the WSA, preserving the area's natural qualities. Outstanding opportunities for solitude and primitive recreation would be preserved in the numerous canyons and rugged mountains, as would special features, including riparian habitat, areas of scenic beauty, and a bald eagle wintering area.

No significant manageability problems are expected under these alternatives, and no problems are foreseen from the maintenance of existing range and wildlife facilities or from outside impacts. The powerline (an existing private right) would continue to be maintained by horseback and helicopter. Helicopter use would only briefly impair wilderness values. Upgrading the existing powerline to 69 kv would not affect wilderness values because existing towers and methods of maintenance would not change. Mining claims have been filed in the WSA's extreme west. Any exploration or development of claims determined to have valid existing rights could impair the area's wilderness character. Table 3-6 shows the status of mining claims in the WSAs.

No Wilderness. Under *No Wilderness* Needle's Eye WSA would not become part of the National Wilderness Preservation System (NWPS), and wilderness values would be impaired. Developing mining claims in the western portion of the WSA would severely disturb naturalness and opportunities for solitude. Building the proposed ranch road to Dick Spring would impair the naturalness of the central and eastern portions of the WSA and would impair outstanding opportunities for solitude and primitive recreation. Small-scale, localized projects, such as livestock facilities or wildlife waters, could also slightly impair wilderness values. VRM Class I status, however, would be maintained and would mitigate most impacts associated with these projects.

Moderate Wilderness and Proposed Action. Designating 8,970 acres of wilderness, these alternatives would have the same impacts as would *All Wilderness* and *Enhanced Wilderness* but would involve 515 fewer acres. A small boundary adjustment in the WSA's northwest would provide a more definable boundary, following a ridgeline rather than property lines. Changing the boundary at the eastern end of the WSA would remove a vehicle way from the area designated wilderness and improve the area's natural qualities.

CONCLUSION

All Wilderness and *Enhanced Wilderness* would protect and preserve the wilderness characteristics of the entire Needle's Eye WSA while *Moderate Wilderness* and the *Proposed Action* would preserve wilderness values on 8,970 acres. Nondesignation would result in the loss of wilderness values due to mineral exploration and building of a ranch road.

Wilderness designation would provide an opportunity to expand vegetation diversity in the NWPS. Needle's Eye represents the creosotebush/bursage vegetation type, not now represented in the NWPS.

BLACK ROCK, AZ-4-8 (MAP 2)

All Wilderness. *All Wilderness* would designate all 8,492 acres of Black Rock WSA as wilderness, preserving this area's naturalness and special features. These features include Black Rock, an interesting geologic feature in the WSA's northwest, riparian habitat, raptor

nesting sites, and two proposed threatened and endangered plant species. Wilderness designation would add 8,492 acres to the contiguous Forest Service Santa Teresa RARE II area, an administratively endorsed wilderness area. Together, the two areas would provide 35,652 acres of outstanding wilderness lands.

The northern ridges and slopes of Jackson Mountain are typical of the steep and rocky terrain in much of Black Rock WSA.

No significant manageability problems ari expected under wilderness designation. Although current access via Black Rock Road crosses the San Carlos Indian Reservation and tribal policy is to restrict the travel of nontribal members on the reservation, another access route leads to the WSA's south side. Maintaining livestock facilities would not impact wilderness values or create manageability problems.

Mining would impair wilderness values in the eastern portion of the WSA north of Jackson Mountain if valid existing rights are exercised. Work occurred on mining claims in this portion of the WSA during the wilderness inventory. In accordance with the Interim Management Policy, a road was built from the existing mine to other portions of the claim group and further work is expected. Exploration or development of nonfederal minerals, though not expected at this time, could adversely affect the manageability of that area as wilderness.

No Wilderness. Under *No Wilderness* Black Rock would not be added to the NWPS, and wilderness values would be lost in the WSA's northeast. As under *All Wilderness,* work at the mine north of Jackson Mountain is expected to continue, severely impacting wilderness values in this small area of the WSA.

Within the rest of the WSA, wilderness values are unlikely to be affected by other resource activities. Small, localized projects, such as wildlife and livestock facilities, could slightly impair wilderness values. The entire WSA, however, has VRM Class I status, which would be maintained if the area is not designated. This status would generally protect wilderness values.

Enhanced Wilderness. *Enhanced Wilderness* would designate 7,614 acres as wilderness. It would have essentially the same impacts as *All Wilderness* but would exclude 878 acres in the WSA's northeast. Mining impacts would be much lower because the area of current mining interest would not be designated wilderness.

Moderate Wilderness and Proposed Action. Designating 6,045 acres wilderness, these alternatives would have impacts similar to those under *All Wilderness* but would designate 1,902 fewer acres. Boundary adjustments on the WSA's east and southeast sides would provide a more manageable and definable boundary along ridgelines and would exclude potential conflicts with minerals.

CONCLUSION

All Wilderness would protect and preserve the wilderness values in the entire Black Rock WSA. *Enhanced Wilderness* would protect a slightly smaller area, 7,614 acres, while *Moderate Wilderness* and the *Proposed Action* would preserve 6,590 acres of high quality wilderness values. Nondesignation would result in the loss of wilderness characteristics northeast of Jackson Mountain due to mineral exploration and development.

Wilderness designation would provide an excellent opportunity to expand the vegetation diversity in the NWPS. Black Rock WSA lies in the grama/tobosa shrubsteppe, a vegetation type not now represented in the NWPS.

FISHHOOKS, AZ-4-14 (MAP 3)

All Wilderness and Enhanced Wilderness. These alternatives would designate all of the WSA's 15,013 acres as wilderness, preserving the area's naturalness. Rugged topography and numerous steep and narrow canyons offer many secluded spots where visitors may experience outstanding opportunities for solitude. These opportunities as well as outstanding opportunities for primitive recreation would also be protected. Wilderness designation would preserve many special features, including riparian habitat, raptor nesting sites, archaeological sites, and two relatively undisturbed climax plant communities.

No significant manageability problems are expected under these alternatives because no existing resource uses would degrade the WSA's wilderness values. Livestock and wildlife facilities could be main-

ENVIRONMENTAL CONSEQUENCES

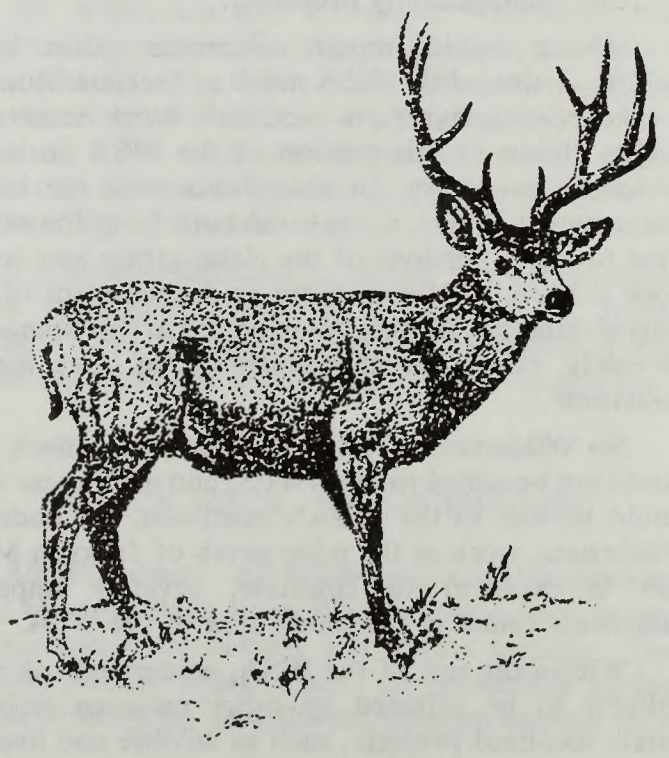
Sheer clifflines offer dramatic scenery at higher elevations throughout Fishhooks WSA.

tained without affecting the area's wilderness manageability. The WSA's southeast has 76 mining claims, the exploration or development of which could impair wilderness values. But this area is not expected to be mined at this time. A request for vehicle access to the state inholding would moderately impair a small portion of the WSA and conflict with the WSA's manageability as wilderness, since the rancher in the area has proposed road construction on the vehicle way leading to the state inholding.

No Wilderness. Under *No Wilderness,* Fishhooks WSA would not be included in the NWPS. Proposed livestock facilities could be built, resulting in the loss of wilderness values. Moreover, if exploration and development of mining claims occur in the WSA's southeast, wilderness values would be even more likely to be degraded.

A rancher has proposed 3.5 miles of road building in three separate locations in the central and southeastern portions of the WSA. Road building and increased access would degrade the natural values of these areas and the solitude they provide. Increased access might also expose significant cultural resources to vandalism. Building proposed livestock waters in Upper Fishhook Canyon would also introduce livestock into an area of relatively undisturbed broadleaf riparian trees.

Moderate Wilderness and Proposed Action. These alternatives would designate 10,083 acres as wilderness, having impacts similar to those under *All Wilderness* and *Enhanced Wilderness* but designating 4,930 fewer acres. The WSA's southeastern boundary would be changed to Dutch Pasture Canyon and exclude from designation lands on which mining claims are located. The adjustment would also exclude lands of lower wilderness quality, which contain a cherrystem road and livestock facilities and are close to a frequently traveled boundary road.



CONCLUSION

All Wilderness and *Enhanced Wilderness* would preserve the wilderness character of the entire Fishhooks WSA. *Moderate Wilderness* and the *Proposed Action* would designate as wilderness 10,083 acres of the highest quality wilderness values. *No Wilderness* would result in the loss of wilderness values and many of the special features. In addition, it would prevent representation in the NWPS of the transition vegetation type that is not presently represented.

Fishhooks WSA is one of only three WSAs in the transition vegetation type. Because this vegetation type is not represented in the NWPS, wilderness designation would provide an excellent opportunity to expand vegetation diversity in the NWPS.

DAY MINE, AZ-4-16 (MAP 4)

All Wilderness. *All Wilderness* would designate as wilderness all 16,629 acres of Day Mine WSA, preserving the area's natural qualities and outstanding opportunities for solitude. It would also ensure outstanding primitive recreation opportunities such as hiking, camping, and hunting in an isolated natural setting. The area's special features — scenic topography, riparian habitat, and nesting sites for raptors — would also be protected.

Although no manageability problems are expected from the maintenance of existing range and wildlife facilities, some problems could result from other resource uses. Vehicles traveling off road from the cherrystem roads would impact manageability as would the development of mining claims. Moreover, access to the state inholding might need improving, which could make the area less manageable as wilderness. A rancher has inquired into improving access to the state inholding but has submitted no formal proposal. Existing mining claims or oil and gas leases are not expected to be worked in the near future because of current market conditions.

No Wilderness, Moderate Wilderness, and Proposed Action. These alternatives recommend none of Day Mine WSA for wilderness designation but are not expected to significantly impair wilderness values because no land use projects or actions proposed for the WSA would impact wilderness values.

Enhanced Wilderness. *Enhanced Wilderness* would designate 11,870 acres as wilderness but exclude from designation lands of current mineral/energy interest and potential and lands of lesser wilderness quality that are affected by cherrystem roads and such human imprints as livestock improvements.

CONCLUSION

All Wilderness would preserve the wilderness characteristics of all 16,629 acres of the Day Mine WSA. *Enhanced Wilderness* would provide higher quality wilderness values and a more manageable wilderness area. *No Wilderness, Moderate Wilderness,* and the *Proposed Action* would not designate any of the WSA as wilderness but values are not expected to be affected.

This WSA is one of only three WSAs located in the transition vegetation type. Since this vegetation type is not represented in the NWPS, wilderness designation provides an excellent opportunity to expand the NWPS's vegetation diversity.

The head of George Canyon in Day Mine WSA lies in the steep and rugged slopes of the Gila Mountains.

GILA BOX, AZ-4-22/23/24(A) (MAP 5)

All Wilderness. *All Wilderness* would designate all 17,831 acres of Gila Box WSA as wilderness. This alternative would preserve this highly scenic and natural area, including such special features as two free-flowing perennial rivers, riparian habitat, a bald eagle wintering area, outstanding geological features, and historic and prehistoric sites. Outstanding opportunities for solitude found throughout the WSA would be preserved in the rugged topography and canyon of the rivers, as would the outstanding opportunity for a variety of primitive recreation uses.

All Wilderness, however, poses a manageability problem due to off-road vehicle (ORV) use, which it would prohibit on the Gila and San Francisco Rivers. Enforcing the area's ORV closure would be a problem that would require BLM to regularly patrol the rivers during periods of low water. Moreover, ORV use on the Gillard Hot Springs road would impact the solitude of that immediate area of the WSA.

No wilderness management problems are expected from maintenance of existing livestock and wildlife facilities. Wilderness management provides for such maintenance, and any problems would be mitigated to an acceptable level.

No Wilderness and Proposed Action. These alternatives would not designate Gila Box WSA as wilderness, creating a moderate potential for loss of wilderness values. Geothermal development in the eastern portion of the WSA would severely impact wilderness values, and such small-scale and localized projects as livestock facilties could slightly impair wilderness values. Nondesignation would allow ORV use to continue, slightly to moderately impacting opportunities for solitude, especially in the river channels and the eastern portion of the WSA. Greater vehicular access could lead to increased vandalism of cultural resources. Most of the canyon country, however, would retain a VRM Class I status, which somewhat protects wilderness values. Some of the upland areas, however, would return to a VRM Class IV status, only slightly protecting wilderness values.

Enhanced Wilderness. This alternative would designate as wilderness 15,272 acres of the Gila Box WSA. It would have impacts similar to those under *All Wilderness* but would designate 2,559 fewer acres east of the confluence of the Gila and San Francisco Rivers and protect 7 fewer river miles. *Enhanced Wilderness* would greatly reduce manageability problems caused by geothermal energy development by not designating nearly all of the area with hot springs and good geother-

The rim of the Gila Box in Gila Box WSA provides spectacular views of the Gila River and the surrounding countryside. The elevation range from the river to the upper rims is 1,000 feet.

mal potential. Manageability problems caused by ORV use would also be eased, as the Gila and San Francisco Rivers above and including their confluence would be open to ORV use. In addition, *Enhanced Wilderness* would exclude from designation most of the lands of lower wilderness value.

Moderate Wilderness. *Moderate Wilderness* would designate 10,192 acres centering on the Gila Box. It would have impacts similar to *Enhanced Wilderness* but would designate 5,080 fewer acres. Designating a compact, manageable area surrounding the Gila Box, *Moderate Wilderness* would preserve 8 miles of the Gila River and exclude from designation the area with the highest geothermal potential. It would further reduce manageability problems caused by ORVs by allowing ORV use to continue on the Gila and San Francisco Rivers east of Eagle Creek.

CONCLUSION

All Wilderness would preserve the wilderness character of all 17,831 acres of the Gila Box WSA including many special features such as cultural resources and the Gila and San Francisco Rivers. Manageability problems, however, would result from existing ORV use of the river canyons. *Enhanced Wilderness* would preserve 15,272 acres of higher quality wilderness values but manageability problems with ORV use on the Gila River would remain. *Moderate Wilderness* would designate as wilderness the highest quality wilderness values (10,192 acres). ORV use conflicts would still occur on the Gila River. *No Wilderness* and the *Proposed Action* would not designate wilderness. Slight to moderate impairment of wilderness values would occur in the river canyon and near Gillard Hot Springs.

Including Gila Box WSA in the NWPS would further expand the diversity of the system by adding two vegetation types not now represented. The WSA lies in the creosotebush/bursage and grama/tobosa shrubsteppe vegetation types.

TURTLE MOUNTAIN, AZ-4-22/23/24(B) (MAP 6)

All Wilderness. *All Wilderness* would designate as wilderness all 17,422 acres of Turtle Mountain WSA, preserving the area's natural qualities and maintaining outstanding opportunities for solitude and primitive recreation. Designation would also enhance special features, including raptor nesting sites and a portion of the historic Safford-Morenci Trail.

Turtle Mountain WSA includes three private inholdings and one state inholding for which vehicle access could be requested and would have to be granted. Vehicle access to the three private inholdings would not greatly impair wilderness values or manageability because the inholdings lie near the WSA boundary and vehicle access. Vehicle access to the state inholding, however, could significantly impair wilderness values and manageability because such access would require a route through the WSA at least 2.5 miles long. Such access is likely to be requested to facilitate implementing an intensive grazing management system on Turtle Mountain allotment, and portions of the WSA could not be effectively managed to preserve their wilderness character.

During the wilderness review, road construction was requested to a state section in the eastern portion of the WSA for ranching purposes. The request, as proposed, was granted under the guidance of BLM's Interim Management Policy. Providing access to most of the inholdings would not adversely impact wilderness values because of the nearness of the inholdings to the WSA boundary. The area would be managed to preserve its wilderness character unless vehicular access is requested to state and private inholdings.

No Wilderness, Moderate Wilderness, and Proposed Action. Not designating any part of Turtle Mountain WSA as wilderness would severely impair wilderness values, especially in the north and eastern portions of the WSA where geothermal exploration is probable.

Moreover, these alternatives would impair naturalness and outstanding opportunities for solitude and primitive recreation. Wilderness values in the rest of the WSA would also be lost through nondesignation. The cumulative effect of existing livestock facilities and proposed range improvements would also impair wilderness values. VRM Class I status would still protect small portions of the WSA near Bonita and Eagle Creeks, but the rest of the WSA would return to a VRM Class IV status, under which wilderness values would be only slightly protected.

Enhanced Wilderness. This alternative would cesignate 9,104 acres as wilderness, 8,318 fewer acres than would *All Wilderness. Enhanced Wilderness,* however, is similar to *All Wilderness* in that both would preserve the wilderness character and special features of Turtle Mountain and the canyon country to the east. Under *Enhanced Wilderness* the WSA's boundaries have been modified to follow the Turtle Mountain ridgeline on the south and west, the ridgeline overlooking South Smith Canyon on the north, and section and property lines on the east.

Trujillo Canyon and its tributaries drain a large area in the center of Turtle Mountain WSA.

The manageability problem of preserving wilderness character would be slightly less than under *All Wilderness,* since inholdings near the WSA boundaries would lie outside the winderness area, eliminating any potential access problem. The state inholding in the WSA's northwest, however, would still lie within the area designated wilderness, and manageability would be a problem. BLM has identified this section for acquisition through exchange. Such an exchange would eliminate manageability problems.

CONCLUSION

All Wilderness would preserve the wilderness characteristics of all 17,422 acres of Turtle Mountain WSA. Access to state and private inholdings would create manageability problems. *Enhanced Wilderness* would designate a more manageable portion of the WSA as wilderness, eliminating the problems of access to private inholdings. Nondesignation under *No Wilderness, Moderate Wilderness,* and the *Proposed Action* would result in the loss of wilderness values due to geothermal energy exploration and the implementing of an intensive livestock grazing system.

Including Turtle Mountain WSA in the NWPS would expand the system's diversity by including vegetation types not currently represented. The WSA lies in three different vegetation types, grama/tobosa shrubsteppe, creosotebush/bursage, and transition. None of these vegetation types are currently represented in the NWPS. Wilderness designation provides an excellent opportunity to represent these types.

JAVELINA PEAK, AZ-4-48 (MAP 7)

All Wilderness. *All Wilderness* would designate as wilderness all 17,870 acres of Javelina Peak WSA. Designation would preserve the WSA's natural qualities as well as its outstanding opportunities for solitude and primitive recreation. Varied topography, including numerous desert washes, rolling hills, highly eroded badlands, and the mountainous topography of Javelina Peak, combine to provide outstanding opportunities for solitude. This same topographic diversity enhances a variety of primitive recreational uses. Wilderness designation would also preserve some interesting and unusual special features, including scenery, geological formations, dunes of possible ecologic interest, and two areas with fossil resources.

Under *All Wilderness,* however, significant manageability problems would result from the cherrystem road to KMP Tank, the powerline boundary road, the southwestern boundary road, and the ORV use area. The flat terrain near these roads makes it easy for vehicles to leave the road and proceed cross-country. Furthermore, the dunes in the southern portion of the WSA are an ORV use area on which BLM would have difficulty enforcing a motor vehicle ban. Unauthorized ORV use would disrupt the wilderness visitor's experience of solitude. In addition, future access may be needed to the small private inholding. This inholding, however, lies near an existing road, and vehicle access would have only slight impacts. Manageability problems and adverse impacts to wilderness values could result if exploration and development on 1,650 acres with non-federal minerals occurred.

No problems are foreseen from the maintenance of range and wildlife facilities if existing methods of maintenance are used. Maintenance is permitted under wilderness management but must be carried out to achieve the objectives of wilderness as well as livestock and wildlife management.

No Wilderness, Moderate Wilderness, and Proposed Action. These alternatives would not designate Javelina Peak WSA as wilderness but would not severely impact wilderness values. Small-scale and localized adverse impacts to naturalness and solitude could occur from ORV use and energy and mineral exploration. Increased vehicular access could lead to increased vandalism to cultural and fossil resources. The mountainous portion of the WSA would keep its VRM Class I status, which would somewhat protect wilderness values. But the lowlands would return to VRM Class IV status, which offers much less protection to wilderness values.

Enhanced Wilderness. *Enhanced Wilderness* would have impacts similar to those of *All Wilderness* but would designate only 7,035 acres, 10,835 acres less than would be designated by *All Wilderness.* Scenic and geologic features would be preserved through wilderness management, but the dunes and fossil resources would not. *Enhanced Wilderness* would avoid many of the manageability problems expected under *All Wilderness,* including the private inholding, ORV use in the dunes, and most ORV use of boundary roads and the cherrystem road. Manageability problems could still occur on 195 acres with non-federal minerals. Lands with lower wilderness values would not be designated wilderness under *Enhanced Wilderness.*

CONCLUSION

All Wilderness would preserve the wilderness values of all 17,870 acres of the Javelina Peak WSA. Designation, however, would present significant manageability problems due to ORV use of many areas within the WSA. *Enhanced Wilderness* would designate higher quality wilderness lands and eliminate most problems of ORV use. *No Wilderness, Moderate Wilderness,* and the *Proposed Action* would designate no lands within the WSA as wilderness. Wilderness values would not be significantly affected.

Wilderness designation would provide an opportunity to expand the diversity of the NWPS. Javelina Peak WSA lies in the grama/tobosa shrubsteppe vegetation type, which is not represented in the system.

PELONCILLO MOUNTAINS, AZ-4-60 (MAP 8)

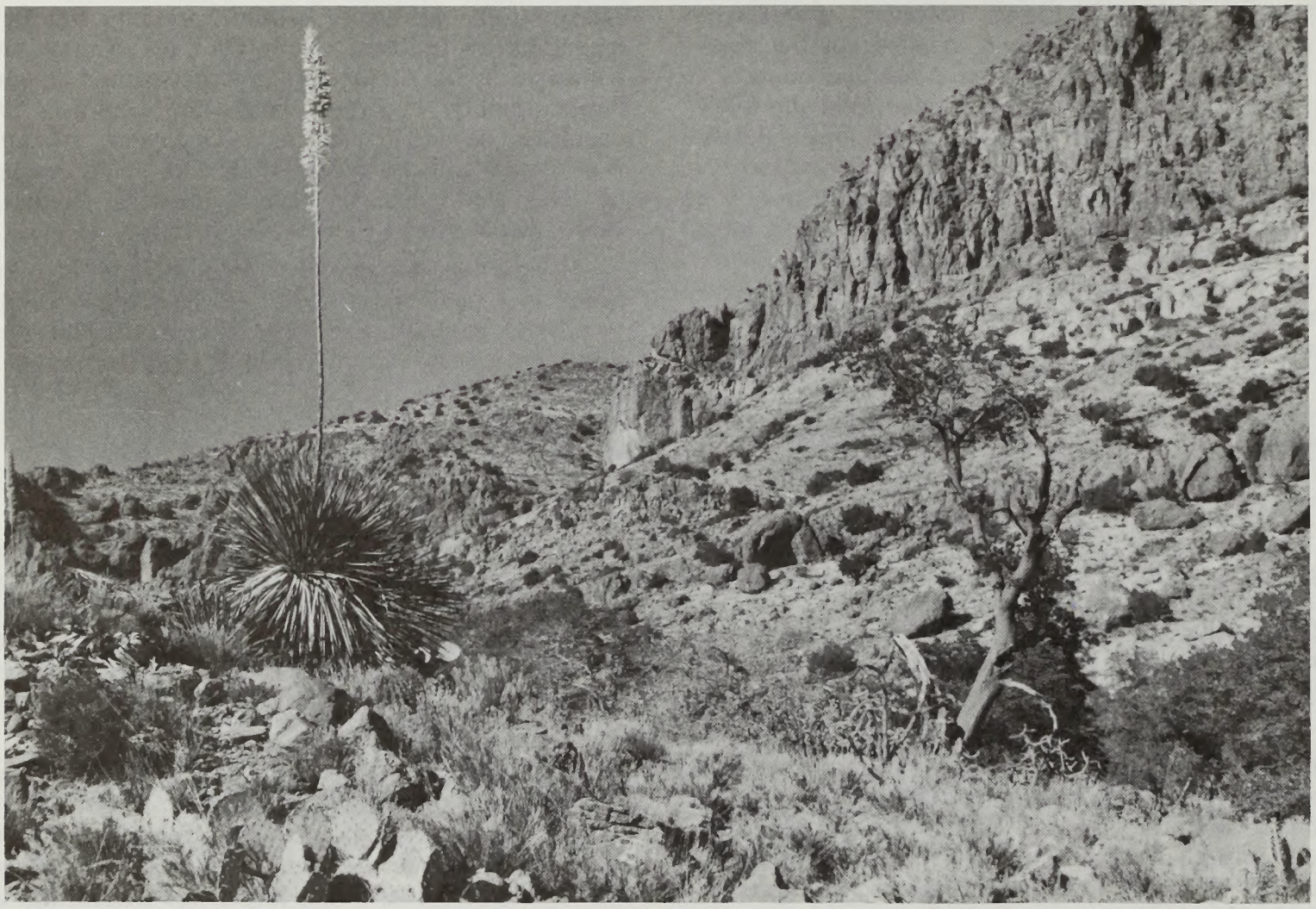
All Wilderness. *All Wilderness* would designate as wilderness all 12,317 acres of Peloncillo Mountains WSA. Wilderness designation would preserve the naturalness and scenery of the WSA's highly dissected mountains, numerous cliffs, and winding canyons, which provide outstanding opportunities for solitude and primitive recreation.

All Wilderness, however, could encounter manageability problems. The irregular land ownership pattern could result in conflicts between wilderness management and incompatible activities on non-federal land. The cherrystem roads impair the naturalness and solitude of the surrounding areas. In addition, ORV use could interfere with manageability and detract from naturalness. No problems are foreseen from the maintenance of existing range and wildlife facilities because compatible maintenance methods would or are being used.

Manageability problems could result on 760 acres with non-federal minerals. Wilderness values could be severely impaired if mineral exploration and development occurred.

No Wilderness, Moderate Wilderness, and Proposed Action. These alternatives propose nondesignation, which would not significantly impair wilderness values. ORV use and mineral exploration could cause small-scale and localized adverse impacts to naturalness and solitude and increased vehicular access could lead to increased vandalism of cultural resources. The mountainous portion of the WSA, however, would retain VRM Class I status, which would somewhat protect wilderness values. The lowlands would return to VRM Class IV, which would only slightly protect wilderness values.

Enhanced Wilderness. *Enhanced Wilderness* would designate 10,418 acres of Peloncillo Mountains WSA as wilderness, 1,899 acres less than would be designated by *All Wilderness.* Left undesignated would be the lowlands of the WSA's eastern portion and lands



Dramatic scenery and a diversity of topography and vegetation are among the wilderness-related values in Peloncillo Mountains WSA.

of lesser wilderness quality impacted by cherrystem roads, vehicle ways, and livestock facilities. In the area designated wilderness, *Enhanced Wilderness* would have impacts similar to those expected under *All Wilderness*. Though the manageability problems associated with cherrystem roads would be excluded, further manageability problems would result from a boundary even more irregular than that proposed under *All Wilderness*. The wilderness area would be nearly cut in half by not designating lands around Little Doubtful Canyon. Manageability problems on lands with non-federal minerals would be the same as under *All Wilderness*.

CONCLUSION

All Wilderness would protect naturalness and scenery of the entire Peloncillo Mountains WSA. Irregular land ownership patterns could result in manageability problems due to incompatible adjacent land uses. *Enhanced Wilderness* would designate lands with higher quality wilderness values and would exclude areas with manageability problems caused by ORV use. The wilderness boundary, however, would be even more irregular than under *All Wilderness*. *No Wilderness, Moderate Wilderness,* and the *Proposed Action* would not designate any of the WSA as wilderness. Wilderness values would not be significantly impaired.

Including Peloncillo Mountains WSA in the NWPS would further expand the diversity of the system by adding the oak-juniper woodland vegetation type, which is now represented by only two designated and four administratively endorsed wilderness areas.

HAPPY CAMP CANYON, AZ-4-65 (MAP 9)

All Wilderness. *All Wilderness* would designate as wilderness all 16,761 acres of Happy Camp Canyon WSA, protecting the WSA's natural qualities and the special features — scenic views, riparian areas, historic sites, and geologic formations. *All Wilderness* would also maintain the outstanding opportunities for solitude provided by the WSA's mountains and canyons, as well as outstanding primitive recreation opportunities for hiking, backpacking, camping, and rock scrambling.

Several factors, however, could lead to manageability problems. Requests for access to the four private inholdings, though not expected in the near future, could result in vehicle routes that severely impair

naturalness and solitude. The WSA's irregular boundary on the east and north could allow incompatible activities to conflict with wilderness management, although such activities are not likely. The cherrystem road in lower Happy Camp Canyon and the private land at road's end could also create manageability problems due to incompatible uses. The planned use of this land, livestock grazing, however, is compatible with wilderness management.

Further impacts to naturalness and solitude could result from exploration and development of mining claims in the western and southern portions of the WSA. Currently, 268 mining claims have been filed within the WSA. If valid existing rights are shown and exercised, wilderness values could be impaired. No problems are foreseen from the maintenance of range and wildlife facilities, since existing methods are compatible with wilderness objectives.

Manageability problems could result on 576 acres with non-federal minerals. Wilderness values could be adversely impacted if mineral exploration and development occurred.

No Wilderness. *No Wilderness* would designate none of Happy Camp Canyon WSA as wilderness, severely impairing wilderness values in the WSA's western portion, an area of high mineral potential. Mining would severely impair the area's wilderness character through road construction and surface disturbance. Small-scale and localized projects, such as livestock or wildlife waters, would slightly impair wilderness values. Cultural resources could suffer increased vandalism resulting from easier vehicular access.

VRM Class I status would be retained on Government Peak and in Howell Canyon, somewhat protecting wilderness values. The remainder of the WSA would return to either VRM Class III or IV status, which offer much less protection.

Enhanced Wilderness. *Enhanced Wilderness* would designate 12,807 acres as wilderness, excluding from designation lands with mineral potential in the western and northern portions of the WSA. Impacts under *Enhanced Wilderness* would be similar to those under *All Wilderness* but would involve 3,954 fewer acres, including lands of fewer wilderness values. Excluded from designation would be old mine workings, vehicle ways, and other human imprints in the western portion of the WSA along Buckeye Canyon and in the southern portion of the WSA near Wood Canyon.

Under *Enhanced Wilderness,* only one private inholding would lie within the designated wilderness area, which would lessen manageability problems from requests for access to inholdings.

Modernate Wilderness and Proposed Action. These alternatives would designate as wilderness 9,238 acres, preserving the wilderness values and special features of Happy Camp Canyon watershed. With impacts similar to *All Wilderness,* these alternatives would designate 7,523 fewer acres, concentrating on an area with definable, manageable boundaries, the highest quality wilderness values, and the fewest resource conflicts. The area proposed for designation would exclude private inholdings and most of the lands with high mineral potential, lessening the possibility of impacts from mineral exploration and development. Manageability problems on 122 acres with non-federal minerals would be the same as under *All Wilderness.*

CONCLUSION

All Wilderness would preserve the wilderness qualities of all of Happy Camp Canyon WSA but result in manageability problems from access to private inholdings, irregular land ownership patterns, cherrystem roads, and mineral exploration. *Enhanced Wilderness* would preserve 11,871 acres of higher quality wilderness values in the WSA and reduce wilderness manageability problems. *Moderate Wilderness* and the *Proposed Action* would designate 9,079 acres of the WSA with the highest quality wilderness values. Manageability problems from access to inholdings and mineral exploration would be nearly eliminated. *No Wilderness* would result in severe impairment of wilderness values in the WSA's western portion, an area of high mineral potential. The remainder of the WSA would only be slightly affected.

Including the WSA in the NWPS would expand the diversity of the system by adding to the grama/tobosa shrubsteppe vegetation type, not now represented, and the oak-juniper woodland, represented by two designated and four administratively endorsed wilderness areas.

IMPACTS TO MINERALS AND ENERGY

Designating an area as wilderness would close it to all new claim staking, prospecting, and exploration work under the mining laws. Mining operations could continue only on those claims located and containing a valid discovery as of the date of wilderness designation. See Table 4-2 for the number of mining claims filed by WSA as of March 1982.

Minerals cannot be leased in a designated wilderness area, but leases issued before designation could be developed subject to the terms and conditions

TABLE 4-2
MINING CLAIMS IN AREAS PROPOSED FOR WILDERNESS DESIGNATION

	All Wilderness	No Wilderness	Enhanced Wilderness	Moderate Wilderness	Proposed Action
Needle's Eye	43	0	43	43	43
Black Rock	25	0	1	1	1
Fishhooks	76	0	76	0	0
Day Mine	109	0	4	0	0
Gila Box	12	0	10	3	0
Turtle Mountain	0	0	0	0	0
Javelina Peak	0	0	0	0	0
Peloncillo Mtns.	1	0	1	0	0
Happy Camp Canyon	268	0	12	49	49
Total	534	0	147	96	93

of the lease. Since all the leases within the WSAs contain wilderness protection stipulations, any lease development within a designated wilderness area would not be allowed to impair wilderness values. See Table 4-3 for acres under lease by WSA as of January 1983.

The total impact of a wilderness designation on mineral and energy exploration and development will never be known. Although the U.S. Geological Survey and the Bureau of Mines will conduct mineral surveys on areas determined to be suitable for wilderness, an area's mineral resource potential can never be fully evaluated at any particular time because of changing technology. Designation might not impact an area lacking mineral values, but the impact could be immeasurable if an area has significant mineral values. Even after a discovery is made, years may be needed to determine the nature of a deposit. The chances of an initial discovery occurring after wilderness designation are nearly nonexistent.

CONCLUSION BY WSA

Needle's Eye

All Wilderness, Enhanced Wilderness, Moderate Wilderness, and Proposed Action. These alternatives would preclude exploration for uranium and other minerals and any resulting future production. The area has moderate potential for exploration, and impacts could thus be significant.

No Wilderness. *No Wilderness* could lead to future exploration and development by removing the WSA from constraints of the Interim Management Policy (IMP).

Black Rock

All Wilderness. *All Wilderness* would preclude any future exploration and development in the entire WSA. A past producer of fluorspar lies just outside the WSA boundary and may still contain economically recoverable reserves. Since these reserves may extend into the WSA, the impacts could be significant.

No Wilderness. *No Wilderness* would remove the WSA from IMP constraints and make future exploration more likely.

Enhanced Wilderness, Moderate Wilderness, and Proposed Action. These alternatives would not designate as wilderness the part of the WSA near known fluorspar mineralization and would thus not affect mining there. These alternatives, however, would

TABLE 4-3
ACRES UNDER OIL AND GAS LEASE

	All Wilderness	No Wilderness	Enhanced Wilderness	Moderate Wilderness	Proposed Action
Needle's Eye	0	0	0	0	0
Black Rock	0	0	0	0	0
Fishhooks	600	0	600	600	600
Day Mine	5,340	0	3,600	0	0
Gila Box	0	0	0	0	0
Turtle Mountain	0	0	0	0	0
Javelina Peak	12,240	0	4,980	0	0
Peloncillo Mtns.	2,480	0	2,480	0	0
Happy Camp Canyon	8,480	0	7,880	4,840	4,840
Total	29,140	0	19,540	5,440	5,440

preclude exploration in the remaining area. Existing data, however, reveals that production potential in this area is low.

Fishhooks

All Wilderness and Enhanced Wilderness. These alternatives would preclude future exploration and development in the entire WSA. The area might have some copper production potential, but no data exists for estimating the degree of potential. Some impacts to exploration are likely because of the area's closeness to major mining districts.

No Wilderness. *No Wilderness* could lead to future exploration and development by removing the area from IMP constraints.

Moderate Wilderness and Proposed Action. Under these alternatives, impacts to future mineral exploration and development would be similar to those under *All Wilderness* except in the southeastern third of the WSA. The area from Dutch Pasture Canyon south would not be designated wilderness, and mineral exploration and development would not be affected.

Day Mine

All Wilderness. *All Wilderness* would preclude future exploration and development in the entire WSA and could prevent copper exploration. The WSA has some speculative potential based on its closeness to major mining districts.

No Wilderness, Moderate Wilderness, and Proposed Action. These alternatives could lead to future exploration and development by removing the WSA from the constraints of the Interim Management Policy.

Enhanced Wilderness. *Enhanced Wilderness* would exclude part of the WSA from wilderness designation, including a large portion of an area reported to contain a magnetic anomaly. The rest of the area would be closed to future exploration and development. Impacts to this portion would be similar to those under *All Wilderness*.

Gila Box

All Wilderness. *All Wilderness* would preclude future mineral exploration and development in the WSA. Because the entire area is classified as prospectively valuable for geothermal resources, wilderness designation would prevent geothermal development in the eastern part of the WSA, where hot springs related to major faulting occur. Copper exploration could not occur in the WSA, which has some speculative potential based on its closeness to major mining districts.

Diamond Bar Peak dominates the upper reaches of Steer Springs Canyon in Fishhooks WSA.

No Wilderness and Proposed Action. These alternatives could lead to future exploration and development by removing the WSA from IMP constraints.

Enhanced Wilderness. *Enhanced Wilderness* would have the same impacts as would *All Wilderness*, except that large portions of the areas of good geothermal potential would be excluded from designation, reducing impacts to development.

Moderate Wilderness. *Moderate Wilderness* would not designate areas of good geothermal potential or a large portion of lands with speculative copper potential. Impacts to exploration and development would probably be low.

Turtle Mountain

All Wilderness. *All Wilderness* would preclude exploration and any resulting development from the entire WSA. The WSA's location between two major copper mining districts makes it a likely area for future exploration. Because production potential is only speculative, based on existing data, *All Wilderness* could significantly impact exploration. Since the entire area is classified prospectively valuable for geothermal resources, the development of these resources could also be adversely impacted.

No Wilderness, Moderate Wilderness, and Proposed Action. These alternatives could lead to future exploration and development by removing the WSA from IMP constraints.

Enhanced Wilderness. *Enhanced Wilderness* would exclude from wilderness designation areas of good geothermal potential and reduce by a half the area in the WSA that would be closed to copper exploration and development under *All Wilderness*. Impacts to exploration and development would be reduced accordingly.

ENVIRONMENTAL CONSEQUENCES

Javelina Peak

All Wilderness. *All Wilderness* would close the entire WSA to future mineral and energy exploration and development, having potential adverse impacts on areas with possible geothermal potential.

No Wilderness, Moderate Wilderness, and Proposed Action. These alternatives could lead to future exploration and development by removing the WSA from IMP constraints.

Enhanced Wilderness. *Enhanced Wilderness* would remove the lowland portions of the WSA from wilderness designation and allow exploration and development on all but the WSA's mountainous portion. Impacts to mineral resource development would be insignificant because, if the area has any mineral potential, it would be expected at lower elevations.

Peloncillo Mountains

All Wilderness. *All Wilderness* would remove the entire WSA from future exploration and development. Given the uncertain mineral potential of the area, impacts might be low. Future exploration, however, would be precluded.

No Wilderness, Moderate Wilderness, and Proposed Action. These alternatives could lead to future exploration and development by removing the WSA from IMP constraints.

Enhanced Wilderness. *Enhanced Wilderness* would remove most of the WSA from future exploration and development and have impacts similar to *All Wilderness.*

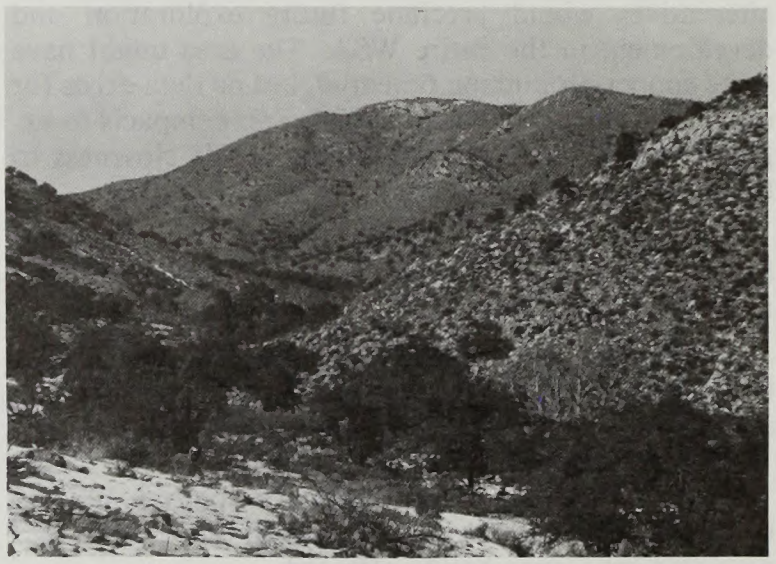
Happy Camp Canyon

All Wilderness. *All Wilderness* would remove the entire WSA from future exploration and development and significantly impact the heavily mineralized portions of this area.

No Wilderness. *No Wilderness* would remove the area from IMP constraints and allow future exploration and development.

Enhanced Wilderness. *Enhanced Wilderness* would exclude from wilderness designation most of the WSA's known mineralized areas, eliminating the immediate impacts on mineral resources. The remainder of the area, would be closed to future exploration and development, which could adversely impact potential mineral development. These impacts would be negligible compared to those under *All Wilderness.*

Moderate Wilderness and Proposed Action. These alternatives are similar to *Enhanced Wilderness* in excluding most of the known mineralized areas. A potentially mineralized area in the southwest portion of the WSA, however, would be designated, which could lead to impacts greater than those under *Enhanced Wilderness.*



Howell Canyon is a major tributary to Happy Camp Canyon in Happy Camp Canyon WSA.

IMPACTS TO LIVESTOCK GRAZING

Livestock grazing, occurring before wilderness designation, can continue. Wilderness designation, however, could constrain livestock grazing in each allotment. Because livestock management goals and objectives are specific to individual grazing allotments, the impacts of wilderness designation on each allotment would depend on the specific activities proposed for managing livestock. Within the nine WSAs, proposed livestock management activities include the building of fences, water developments, corrals, line cabins, and roads. Vegetation treatment, such as removing undesired plants followed by seeding or planting of desired species, is not a common practice in the Safford District.

Wilderness designation would have an overall low adverse impact to livestock management in the nine WSAs. Some projects (Table 3-8) might be acceptable as proposed, some might need mitigation to meet wilderness objectives, and some might not be permitted. But overall, allotment management plans (AMPs) would be implemented without impairing wilderness values or affecting the numbers of livestock that could graze the range.

IMPACTS TO LIVESTOCK GRAZING

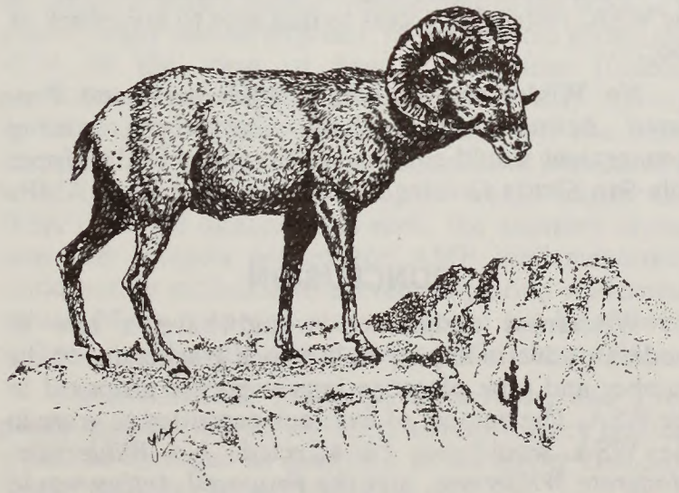
Since no new range improvements are planned for Gila Box, Javelina Peak, Peloncillo Mountains, and Happy Camp Canyon WSAs, livestock grazing would not be affected by wilderness designation and is not further discussed. BLM, however, continually monitors AMPs for effectiveness. If problems develop or objectives are not realized, an AMP may need to be changed. Such changes could involve more livestock facilities, the building of which would have to conform to livestock and wilderness management plans.

NEEDLE'S EYE

All Wilderness and Enhanced Wilderness. To complete implementation of Mescal Mountain AMP, 5 miles of fence and 2.5 miles of road building are proposed in the WSA. With proper design and location, the fence would only slightly impair the WSA's naturalness. Roads, however, are not permitted in wilderness areas. Although the fencing is needed to implement the AMP, the roads are not. The roads are desired by the rancher for ease of livestock gathering and shipping. Under *All Wilderness* and *Enhanced Wilderness* cattle would have to continue being gathered and driven 1 to 2 more miles without the road.

No Wilderness. Under *No Wilderness* livestock grazing would be managed as described in the Upper Gila-San Simon Grazing EIS (BLM, 1978) and in the AMPs.

Moderate Wilderness and Proposed Action. These alternatives would have the same impact as *All Wilderness* with the following exception. The vehicle way in the extreme eastern portion of the WSA would form the boundary of the designated wilderness area. As such, the vehicle way could be rebuilt and cattle would have to be driven 0.5 to 1 mile less in gathering operations.



CONCLUSION

Any wilderness designation would have a low adverse impact to livestock grazing in the Needle's Eye WSA and would not affect the numbers of livestock permitted within the WSA. The *No Wilderness* alternative would have no effect on livestock grazing.

BLACK ROCK

All Wilderness. To complete its implementation, the Spenazuma/Holdup Canyon AMP proposes 2 miles of fence and six livestock waters (springs, wells, dirt reservoirs). The Jackson Mountain AMP proposes a slickrock catchment and steel storage tank as well as the rebuilding of 1 mile of vehicle way. With proper location and design the fences and waters would be allowed under wilderness designation due to their low impact on wilderness values. Dirt reservoirs, catchments, and steel storage tanks could be built but would require more careful planning and design to prevent the impairment of wilderness values. Road building would not be permitted.

Several canyons radiate from the summit of Jackson Mountain in Black Rock WSA.

The purpose of these proposed waters and fences is to improve livestock distribution and forage utilization. If properly implemented, both of these objectives would also enhance wilderness values. The road building is not needed for livestock management but desired for ease of operations.

No Wilderness. Under *No Wilderness* livestock grazing would be managed as described in the Upper Gila-San Simon Grazing EIS and in the AMPs.

Enhanced Wilderness. *Enhanced Wilderness* would have essentially the same impacts as *All Wilderness.* The area designated wilderness under *Enhanced Wilderness*, however, would not include locations for two spring

developments in the WSA's extreme eastern portion, and wilderness management would not constrain the development of the springs.

Moderate Wilderness and Proposed Action. These alternatives would affect livestock grazing as would *All Wilderness*, but adverse impacts would be slightly less because two spring developments, a slickrock catchment, and a steel storage tank would not lie within the area designated wilderness. Wilderness management would thus not constrain the development of these projects.

CONCLUSION

Because of the number and type of livestock facilities proposed, adverse impacts to grazing would be low for *Moderate Wilderness* and the *Proposed Action* and moderate for *All Wilderness* and *Enhanced Wilderness*.

The number of livestock permitted to graze within the WSA would not be affected. The *No Wilderness* alternative would have no effect on livestock grazing.

FISHHOOKS

All Wilderness and Enhanced Wilderness. To complete implementation of Diamond Bar and Day Mine AMPs, a few range improvements are needed. On Diamond Bar allotment, two spring developments and two catchments are proposed, along with 1 mile of fence and 3 miles of road building. Proposed for Day Mine Allotment are 0.5 miles of road building and a dirt reservoir.

Spring developments generally have little effect on wilderness values, but catchments and dirt reservoirs have a potential for adverse impacts. Design and location of these facilities would have to be carefully considered to reduce adverse impacts to wilderness values. The objective of these waters is to achieve better livestock distribution and forage utilization. Achieving these objectives would also improve wilderness values. Whether the waters actually developed are catchments or dirt reservoirs is not as important as developing a dependable water source. Other water developments such as small masonry dams might be more compatible with preservation of wilderness values.

In Dutch Pasture Canyon, wilderness designation would prohibit road building desired for ease of livestock management in the southern portion of the Diamond Bar allotment. Horseback access could continue. A rancher has also proposed a road to provide access to the state inholding. Adequate and reasonable access to this state section will be allowed.

No Wilderness. Under *No Wilderness*, livestock grazing would be managed as described in the Upper Gila-San Simon Grazing EIS and in AMPs.

Moderate Wilderness and Proposed Action. Under these alternatives, impacts to livestock grazing would be similar to but less adverse than those under *All Wilderness*. The southern boundary of the area designated wilderness would be Dutch Pasture Canyon, and 2 miles of road building in the southeastern portion of the WSA would be permitted. Wilderness management also would not constrain the building of a dirt reservoir and the developing of a spring.

CONCLUSION

Because of the number and type of range improvements proposed, adverse impacts to livestock grazing would be low for *Moderate Wilderness* and the *Proposed Action* and moderate for *All Wilderness* and *Enhanced Wilderness*. The numbers of livestock permitted to graze within the WSA would not be affected. *No Wilderness* would have no effect on livestock grazing.

DAY MINE

All Wilderness and Enhanced Wilderness. The following developments are proposed to complete implementation of the Day Mine AMP in this WSA: three slickrock catchments with steel storage tanks, one masonry dam, and a dirt reservoir. A half-mile of road building and some stock trail construction are also proposed. The waters would improve livestock distribution in the allotment, relieve grazing pressure on other areas, and improve forage utilization.

Project location, design, and construction would have to be carefully considered to reduce impacts to the area's natural values. The primary objective is to provide livestock water. If the proposed projects achieve this objective while also meeting wilderness objectives, then they would be permitted.

Wilderness designation would not permit road building of the vehicle way in the northeastern part of the WSA, restricting access to that area to horseback or foot.

No Wilderness, Moderate Wilderness, and Proposed Action. Under these alternatives, grazing management would continue as described in the Upper Gila-San Simon Grazing EIS and the Day Mine AMP.

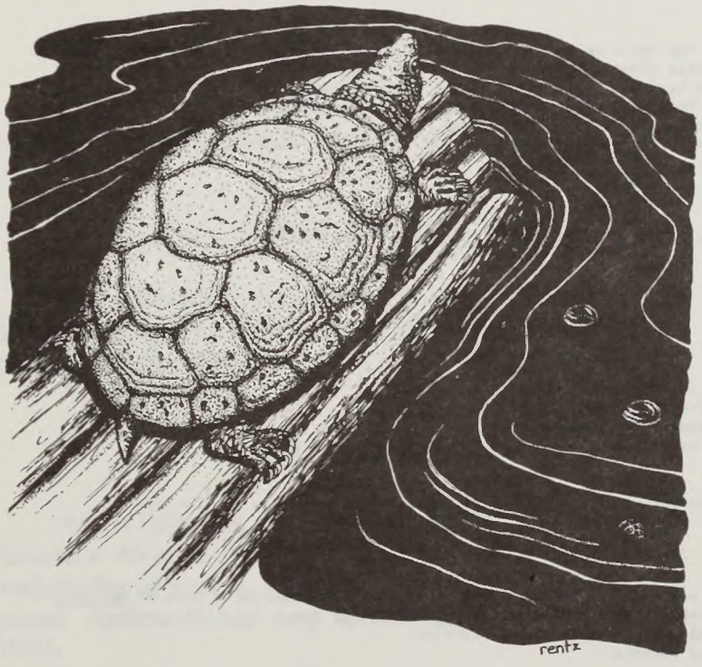
CONCLUSION

Wilderness designation would have a low to moderate adverse impact on livestock grazing due to the number and type of range improvements proposed in the WSA. The number of livestock permitted to graze in the WSA would not be affected. *No Wilderness, Moderate Wilderness,* and the *Proposed Action* would have no effect on livestock grazing.

IMPACTS TO RECREATION

TURTLE MOUNTAIN

All Wilderness and Enhanced Wilderness. To complete implementation of Bull Gap Community and Turtle Mountain AMPs, several livestock facilities have been proposed. In the Bull Gap Community allotment, less than 0.25 miles of pipeline and a trough are needed to provide dependable water to the northern portion of the allotment, near the top of Turtle Mountain. In Turtle Mountain allotment several livestock facilities are needed, including one spring development, 7 miles of pipeline and associated troughs, two storage tanks, a line cabin, and two livestock traps and corrals using 2 miles of fence. The purpose of these projects is to improve livestock distribution, provide access to forage, and improve the condition of the range on the lower slopes.



Turtle Mountain WSA is considered natural with its human imprints largely unnoticeable in the WSA as a whole. Many human imprints, however, exist within the WSA in the form of livestock facilities (fences, pipelines, steel storage tanks, corrals, spring developments, vehicle ways, dirt reservoirs). The WSA has reached the point where the cumulative impacts of a large number of livestock projects would impair the WSA's natural qualities. As such, the addition of the proposed projects needed for AMP implementation could not be mitigated to prevent impairing wilderness values. Many proposed projects would not be allowed without significantly compromising wilderness values.

No Wilderness, Moderate Wilderness, and Proposed Action. Under these alternatives livestock grazing would be managed as described in the Upper Gila-San Simon Grazing EIS and AMPs.

CONCLUSION

Any wilderness designation would have a significant adverse impact on planned expansion of livestock grazing in the Turtle Mountain WSA. *No Wilderness, Moderate Wilderness,* and the *Proposed Action* would not affect livestock grazing.

IMPACTS TO RECREATION

Wilderness designation would preserve and enhance opportunities for primitive and unconfined recreation, such as hiking, backpacking, hunting, sightseeing, rock scrambling, and environmental study. Recreation dependent upon motorized vehicles or equipment would not be permitted in designated wilderness areas. Opportunities for recreation of this type would decrease or be prohibited altogether. Opportunities for both types of recreation exist throughout the WSAs.

The main recreation activity in all WSAs is hunting, which is often associated with camping and vehicle access. Although hunting and camping are compatible with wilderness, vehicle access would be confined to existing roads. Overland travel and use of vehicle ways would not be permitted. Since off-road vehicle (ORV) use would be most adversely impacted, Table 4-4 shows the impacts on ORV use by alternative and WSA.

CONCLUSION

All Wilderness would ban off-road vehicle use in all WSAs (131,820 acres) including 44 miles of vehicle ways. *Enhanced Wilderness* would close all or portions of each WSA (98,618 acres) to ORV use and prevent use of 28 miles of vehicle ways. *Moderate Wilderness* would ban ORV use in portions of five WSAs (45,073 acres) and the *Proposed Action* would ban use of portions of four WSAs (34,881 acres). These two alternatives would close 17 miles and 5 miles of vehicle ways, respectively. *No Wilderness* would have no impact on ORV use.

Any alternative recommending wilderness would enhance opportunities for primitive recreation. The *No Wilderness* alternative would have no adverse impact to recreation dependent on motor vehicles, but primitive recreational opportunities would be adversely impacted.

IMPACTS TO LAND USE

Access to state and private land is the primary land use affected by wilderness designation. BLM policy provides that adequate access to state or private inholdings cannot be denied. Adequate access is defined as the combination of routes and modes of travel having the

TABLE 4-4
IMPACTS TO OFF-ROAD VEHICLE USE

WSA	All Wilderness	No Wilderness	Enhanced Wilderness	Moderate Wilderness	Proposed Action
Needle's Eye	ORV use would be banned on Gila River, vehicle way above Mescal Creek, and on vehicle way along WSA's eastern boundary. ORV use, however, is believed to be light.	No impact	Same as All Wilderness.	Same as All Wilderness except vehicle way forming WSA's eastern boundary would not be affected.	Same as Moderate Wilderness.
Black Rock	ORV use would be banned on Fourmile Canyon vehicle way.	Fourmile Canyon vehicle way could be rebuilt, which would improve access for recreation but decrease opportunities for primitive recreation.	Same as All Wilderness.	Same as All Wilderness.	Same as All Wilderness.
Fishhooks	ORV use would be banned in Dutch Pasture Canyon, and on vehicle way to state inholding.	Access for non-primitive recreation would improve if ranch roads are built in Dutch Pasture Canyon. Opportunities for primitive recreation would decrease.	Same as All Wilderness.	ORV use would continue in Dutch Pasture Canyon, but ORV use on vehicle way to state inholding would be banned.	Same as Moderate Wilderness.
Day Mine	ORVs would be banned along fenceline vehicle way in WSA's northwest and on vehicle way beyond Brushy Tank.	Would allow rebuilding of vehicle way beyond Brushy Tank, providing further recreation access to Gila Mountains.	ORV use banned on vehicle way beyond Brushy Tank.	Same as No Wilderness.	Same as No Wilderness.
Gila Box	ORV use would be banned along Gila and San Francisco Rivers, eliminating 5,000 recreation visitor days annually. Hiking and backpacking would be enhanced by eliminating ORV conflicts.	No impact	ORV use would be banned on Gila River downstream from its confluence with San Francisco River, eliminating 2,500 recreation visitor days.	ORV use would be banned on Gila River downstream from Eagle Creek, eliminating 2,500 recreation visitor days.	No impact
Turtle Mountain	ORV use would be banned in Trujillo and South Smith Canyons. Primitive recreation, such as hiking and Safford-Morenci Trail, would be enhanced.	No impact	Same as All Wilderness.	No impact	No impact
Javelina Peak	ORV use would be banned on lowlands of WSA's west and on dunes in south of WSA--a popular ORV use area.	No impact	ORV use would be banned in foothills of Whitlock Mountains but not in other ORV use areas.	No impact	No impact
Peloncillo Mountains	ORV use would be banned on vehicle ways branching off Little Doubtful Canyon Road.	No impact	No impact	No impact	No impact
Happy Camp Canyon	ORV use would be banned on vehicle ways in Buckeye, Howell, Happy Camp, and Sheep Canyons.	No impact	ORV use would be banned on vehicle ways in Howell, Happy Camp, and Sheep Canyons.	ORV use would be banned in Howell and Happy Camp Canyons.	Same as Moderate Wilderness.

least lasting impact on wilderness values while serving the reasonable purposes for which the state or private land is held.

Specific discussions by WSA and alternative follow. Since *No Wilderness* would not affect any land uses, it will not be further discussed.

NEEDLE'S EYE

All alternatives could essentially landlock 231 acres of state land between the WSA and the San Carlos Indian Reservation by controlling access (route and mode) across the WSA. These alternatives would also preclude the use of three U.S. Geological Survey (USGS) withdrawals established for power site reserves and water power designation. The dams and reservoirs would not be established unless approved by Congress. Although USGS does not wish to relinquish these withdrawals, the dams are not expected to be built.

A fourth withdrawal in the WSA, established to protect the Gila River watershed, would be enhanced and protected by wilderness designation. The powerline crossing the WSA could continue to be maintained. Current methods of access and maintenance would not impair wilderness values.

CONCLUSION

Any wilderness designation would have little impact on existing land uses.

IMPACTS TO LAND USE

BLACK ROCK

Black Rock WSA is accessible by the Black Rock Road, which crosses a small portion of the San Carlos Indian Reservation. Tribal policy is to restrict reservation access and travel of nontribal members. If the road across the reservation is closed, access to the area designated wilderness under all alternatives would have to be re-established. The best route would be up Four-mile Canyon, south of Jackson Mountain. This route, however, crosses private land, and rights of access would have to be established.

Black Rock WSA includes 545 acres with non-federal minerals along the northern boundary. Wilderness designation would not prohibit access to these minerals but would control routes and modes of access.

CONCLUSION

Any wilderness designation would not affect existing land uses in Black Rock WSA.

FISHHOOKS

Any wilderness designation could isolate a 202-acre state inholding by controlling routes and modes of access across the WSA.

DAY MINE

All Wilderness and *Enhanced Wilderness* could isolate a 40-acre state inholding by controlling routes and modes of access. *Moderate Wilderness and the Proposed Action* would not affect land uses within the WSA.

GILA BOX

All Wilderness and *Enhanced Wilderness* could isolate an 80-acre private inholding by controlling the routes and modes of access. *Moderate Wilderness* and the *Proposed Action* would not affect land uses within the WSA.

TURTLE MOUNTAIN

All Wilderness could isolate 285 acres of private land and 640 acres of state land. Wilderness designation would not prohibit access to the inholdings but would control the routes and modes of access. A pipeline right-of-way and a powerline right-of-way along the WSA's northern boundary would not be affected because their right-of-way grants allow maintenance and needed repair of existing facilities. Wilderness designation could restrict the expansion of the rights-of-way or new construction.

Enhanced Wilderness would reduce the conflict with private inholdings by excluding from designation 285 acres of private land as well as the right-of-way along the WSA's northern border. The state inholding would be affected as it would under *All Wilderness.*

Moderate Wilderness and the *Proposed Action* would not affect land uses within Turtle Mountain WSA.

CONCLUSION

Any wilderness designation would not significantly affect existing land uses in Turtle Mountain WSA.

JAVELINA PEAK

All Wilderness could isolate a 40-acre inholding and include 1,650 acres with non-federal minerals. Wilderness designation would not prohibit access to the private land or non-federal minerals but would control routes and modes of access. The WSA's northwest boundary follows an existing powerline right-of-way and access roads, which would not be affected by designation.

Enhanced Wilderness includes 195 acres with non-federal minerals along the eastern boundary. Wilderness designation would not prohibit access to these minerals but would control routes and modes of access.

Moderate Wilderness and the *Proposed Action* would not affect land uses in Javelina Peak WSA.

CONCLUSION

None of the alternatives would significantly affect existing land uses in Javelina Peak WSA.

PELONCILLO MOUNTAINS

All Wilderness and *Enhanced Wilderness* include 760 acres with non-federal minerals. Wilderness designation would not prohibit access to these minerals but would control routes and modes of access.

Moderate Wilderness and the *Proposed Action* would not affect land uses in Peloncillo Mountains WSA.

ENVIRONMENTAL CONSEQUENCES

CONCLUSION

None of the alternatives would significantly affect existing land uses in the WSA.

HAPPY CAMP CANYON

All Wilderness could isolate 258 acres of private inholdings while *Enhanced Wilderness* could isolate only 40 acres of private inholdings. Both of these alternatives include 576 acres with non-federal minerals. Wilderness designation would not prohibit access to the private land or non-federal minerals but would control routes and modes of access.

Moderate Wilderness and the *Proposed Action* would designate lands with no private inholdings but with 122 acres of non-federal minerals. Wilderness designation would not prohibit access to these minerals but would control routes and modes of access.

CONCLUSION

Access to private inholdings and non-federal minerals would be slightly affected by wilderness designation under *All Wilderness* and *Enhanced Wilderness* and less so under *Moderate Wilderness* and the *Proposed Action*.

IMPACTS TO WILDLIFE

Wilderness designation would generally benefit wildlife and wildlife habitat. Decreased mining, development, and vehicular access would lessen human disturbance. Most wildlife habitat projects such as spring developments, catchments, exclosures, and small-scale riparian vegetation rehabilitation would continue in wilderness areas as they have under the Interim Management Policy. Federal and state protected species shown in Table 3-9 could also benefit from wilderness designation through less disturbance of individual species and habitats.

No further wildlife projects are planned for the Peloncillo Mountains, Happy Camp Canyon, and Javelina Peak WSAs. All wildlife projects proposed for the Black Rock, Fishhooks, Day Mine, Turtle Mountain, and Needle's Eye WSAs can be built within the constraints of the Wilderness Management Policy. Each project will be evaluated through an environmental assessment and will be mitigated to conform to the Wilderness Management Policy. Wilderness designation represents no impact to these eight WSAs, and they will not be discussed further.

GILA BOX

All Wilderness. The wildlife projects proposed for Gila Box WSA would improve the riparian habitat along the Gila and San Francisco Rivers. Wilderness management would allow the fencing of 18 miles of both rivers within the WSA.

Planting projects and some clearing of riparian scrub species are also planned for these rivers. The use of vehicles is proposed for the initial planting to transport the trees, fenceposts, hogwire, trough, and drip system pipe. Local off-road vehicle (ORV) enthusiasts have volunteered to install and maintain the

plantings starting in the spring of 1983. Wilderness designation, however, would prohibit the use of motorized vehicles and thus the ORV volunteer labor. The planting projects would still be possible without the use of vehicles but would be more difficult and time consuming, and the extent of the areas planted would be greatly reduced.

No Wilderness and Proposed Action. These alternatives would allow revegetation and riparian scrub removal without wilderness constraints, representing no impact to the wildlife projects.

Enhanced Wilderness. This alternative would have the same adverse impact to broadleaf riparian vegetation as would *All Wilderness* but would eliminate from wilderness designation all 3 miles of the San Francisco River and 4 miles of the Gila River east of the confluence with the San Francisco River. *Enhanced Wilderness* would thus reduce the moderate adverse impact to revegetation work that would occur under *All Wilderness.*

Moderate Wilderness. This alternative would designate as wilderness 3 fewer miles of the Gila River than would *Enhanced Wilderness*, further facilitating revegetation projects.

CONCLUSION

Wilderness designation would have a moderate adverse impact to wildlife by making broadleaf riparian tree planting more difficult and time consuming and by reducing the extent of areas to be planted.

IMPACTS TO THREATENED AND ENDANGERED PLANTS

Wilderness designation would better protect the five candidate threatened and endangered plant species in Needle's Eye, Black Rock, and Happy Camp Canyon WSAs (see Table 3-10). Wilderness would restrict or prohibit such surface-disturbing activities as mineral exploration and development and road construction, which could remove species or alter habitats. Wilderness designation would also permit natural ecological processes to continue with little or no human disturbance. Increased visitor use would not disturb protected plants because they grow where the recreating public is not likely to go (rock ledges).

Under *No Wilderness*, threatened, endangered, or sensitive plant species would not be significantly impacted. The ranges of the species are broad enough so that their continued existence would not be jeopardized by surface disturbance. In addition, BLM policy and the Endangered Species Act provide for the protection of threatened, endangered, and sensitive plant species. Adverse impacts to protected plant species would be identified and mitigated through an environmental assessment.

CONCLUSION

Wilderness designation in Needle's Eye, Black Rock, and Happy Camp Canyon WSAs would provide an additional measure of protection to threatened, endangered, and sensitive plant species. No adverse impacts would result from nondesignation.

Shrub-grassland vegetation grows throughout the upper elevations of Turtle Mountain WSA.

IMPACTS TO CULTURAL RESOURCES

Wilderness designation would protect and preserve cultural resources for scientific, educational, and conservation purposes, providing such uses conform to wilderness and cultural resource management objectives. Prehistoric and historic sites are continually subject to deterioration by natural processes. Far more damaging, however, are human disturbances through resource development and increased access. Impacts of development would be mitigated before the proposed projects begin, but new access into previously remote areas increases the number of visitors and the potential for vandalism.

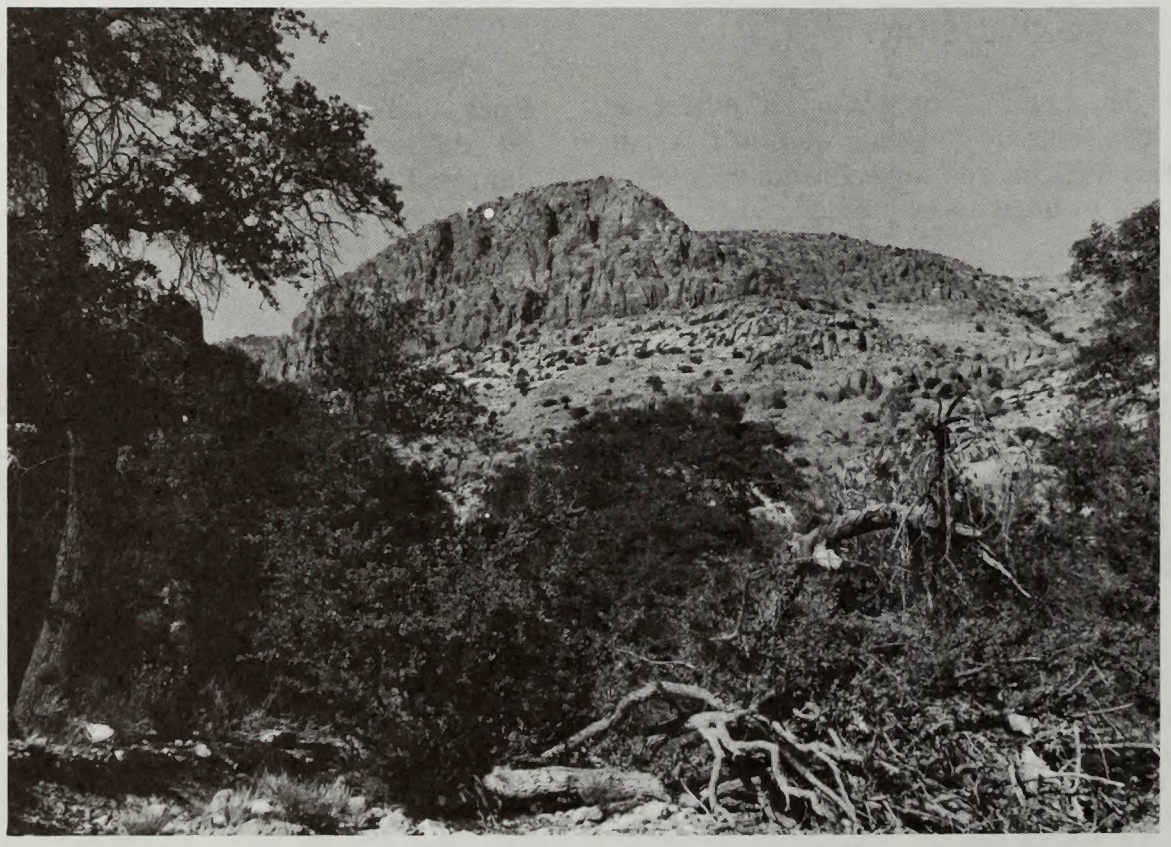
Cultural resources would generally benefit from wilderness designation. Surface disturbance significantly impacting cultural resources would be restricted and mitigated or prohibited. Designation, however, could restrict the use of motorized vehicles and equipment in archaeological studies and excavation. Increased visitation that often accompanies wilderness designation of an area could also impair cultural resources through increased collection of artifacts.

CONCLUSION BY ALTERNATIVE

All Wilderness and Enhanced Wilderness. These alternatives would designate as wilderness all or portions of each WSA. Designation would protect and preserve 46 known prehistoric sites (20 National Register quality — NRQ — sites) and 10 known historic sites (3 NRQ sites). Although site potential and significance vary from low to high in the WSAs, these alternatives would designate as wilderness, Black Rock, Fishhooks, Gila Box, Peloncillo Mountains, and Happy Camp Canyon WSAs, which have both high prehistoric site potential and high significance (Table 3-11).

No Wilderness. Under *No Wilderness,* no WSAs would be designated wilderness, and cultural resources would not benefit from such designation. Although BLM policy and public law protect cultural resources, *No Wilderness*, would not provide the same degree of protection provided by designation since surface disturbing activities could still occur.

Moderate Wilderness. *Moderate Wilderness* would designate as wilderness portions of Needle's Eye, Black Rock, Fishhooks, Gila Box, and Happy Camp Canyon WSAs, providing added protection to 30 prihistoric sites (15 NRQ sites) and 8 historic sites (2 NRQ sites).



Oaks densely cover the bottom of Little Doubtful Canyon in Peloncillo Mountains WSA.

The prehistoric site potential of these areas varies from moderate to high, whereas historic sites potential varies from low to high. Site significance in all WSAs is moderate to high.

Proposed Action. The *Proposed Action* would designate as wilderness portions of Needle's Eye, Black Rock, Fishhooks, and Happy Camp Canyon WSAs and would protect 22 prehistoric sites (13 NRQ sites) and two known historic sites (0 NRQ sites). Historic site potential varies from low to high, and prehistoric site potential varies from moderate to high. Under the *Proposed Action* the site significance for cultural resources is moderate to high.

IMPACTS TO PALEONTOLOGICAL RESOURCES

Paleontological resources are known to occur in two of the nine WSAs. Limestone beds in Needle's Eye WSA contain numerous invertebrate fossils. Javelina Peak WSA contains two known vertebrate fossil sites and has high potential for additional sites. Wilderness designation would generally protect and preserve these resources by restricting or prohibiting surface disturbances. Wilderness designation often results in increased visitor use, which could result in increased fossil collecting.

CONCLUSION

Wilderness designation would better protect the known fossil resources in the Needle's Eye and Javelina Peak WSAs. Though providing less control over surface disturbance than wilderness designation, nondesignation would not greatly affect fossil remains.

IMPACTS TO VISUAL RESOURCES

Areas designated wilderness will be managed as visual resource management (VRM) Class I, a designation given to protect the scenery of areas under special management. In Class I areas, VRM management emphasizes natural ecological changes, allowing limited management activities. Any change in the visual environment must not attract attention. Natural features should dominate the landscape.

A variety of resource management activities may be proposed for the public lands, varying from simple wildlife or livestock waters to pipelines or powerlines and complex mining operations. The degree of visual contrast permitted on the landscape and the VRM classification are influenced by the visual quality of the area, human sensitivity to the proposed development, and the distance from which most people view the project.

Depending on the nature of the project, VRM Classes III and IV generally pose fewer restrictions on layout, design, and construction of proposed developments and allow contrasts in the landscape to be somewhat more evident. Proposals in Class II and especially Class I areas are more restricted, and the objectives and management requirements permit little or no evident changes in the landscape.

CONCLUSION

All areas designated wilderness would also be designated VRM Class I. This designation would preserve the scenery of wilderness areas by restricting or prohibiting activities that might mar the landscape. *No Wilderness* would not affect the visual resources because BLM would continue to manage them according to VRM classes identified through land use planning. Table 4-5 shows the acreages that would be managed under each VRM class by alternative.

IMPACTS TO ECONOMIC CONDITIONS

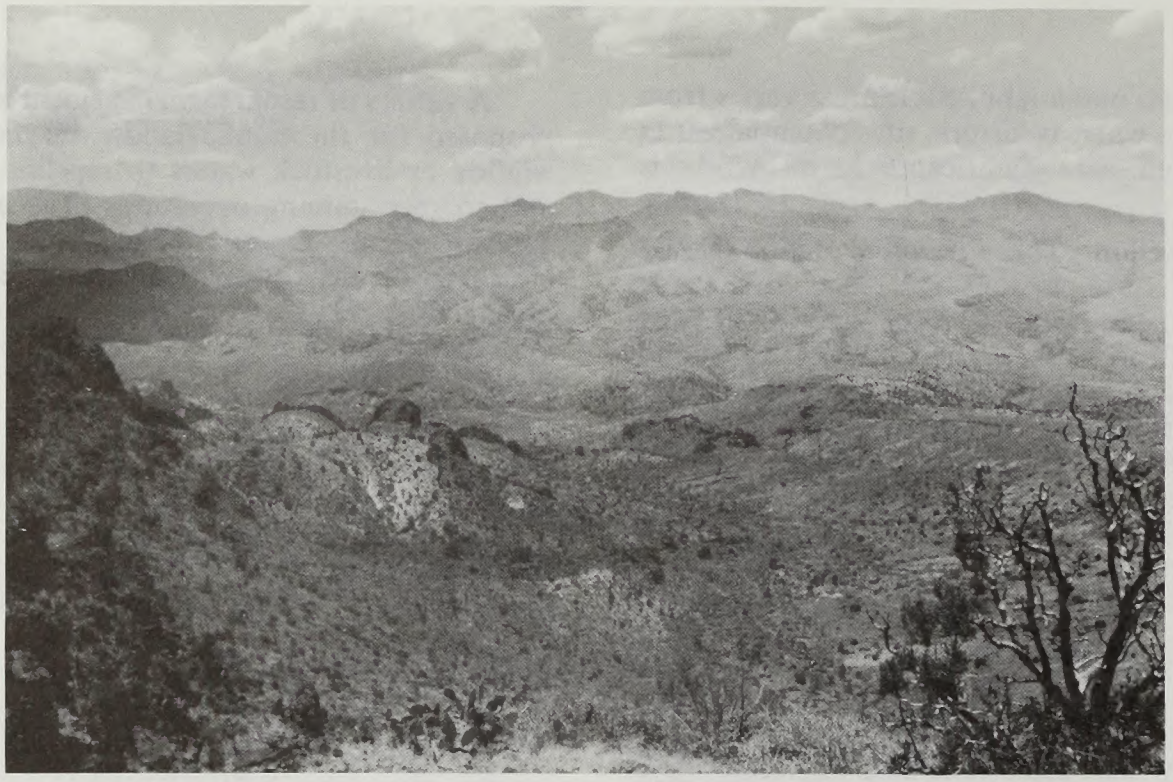
Wilderness designation may restrict, preclude, or enhance activities that would alter economic conditions. Although specific information does not exist to quantify most impacts, designation is expected to have economic impacts on livestock grazing, recreation, hunting, and possibly mining. Because a major portion of the impact is expected to occur in Gila, Graham, and Greenlee Counties, this analysis includes only the impacts to these areas on a regional and local basis.

TABLE 4-5
VRM CLASS ACREAGE*

VRM Class	All Wilderness	No Wilderness	Enhanced Wilderness	Moderate Wilderness	Proposed Action
I	131,820	64,888	108,556	75,266	73,086
III	0	2,120	1,920	1,305	1,305
IV	0	64,812	21,344	55,249	57,429
Total	131,820	131,820	131,820	131,820	131,820

*None of the WSAs were managed as Class II or V before the wilderness review.

ENVIRONMENTAL CONSEQUENCES



The view southwest from Bellmeyer Saddle along the Safford-Morenci Trail in Turtle Mountain WSA offers a magnificent panorama of the Gila Mountains.

REGIONAL IMPACTS

Livestock Grazing

Livestock grazing occurs on 31 allotments within the nine WSAs. Livestock grazing in four WSAs (Gila Box, Javelina Peak, Peloncillo Mountains, and Happy Camp Canyon), containing 20 allotments, would not be affected by wilderness designation. In the other five WSAs (Needle's Eye, Black Rock, Fishhooks, Day Mine, and Turtle Mountain) grazing would be adversely affected to some extent.

On four of the adversely affected WSAs, proposed livestock improvements could be built, but the number and design of improvements may need to be adjusted from that proposed in allotment management plans (AMPs). Moreover, ranch operating costs would increase, and margins of profit would decrease. Increased operating costs, however, would not prohibit continued operations.

On Turtle Mountain WSA, wilderness designation would preclude the building of some improvements and prevent the development of the range to its full potential. Thus the number of livestock permitted to graze the area would not reach its potential.

The 11 ranchers that would be impacted by wilderness designation would make up 3.8 percent of the ranchers in the three counties. Ranching proprietorships make up 43 percent of the total farm proprietors (670). These adversely impacted ranchers collectively contribute less than 1 percent of the personal income to the economy of the three-county area.

Recreation

Little data exists on the actual recreation use of public lands, although general areas of use and types of users are known.

A portion of the retail trade and service sectors of the economy reflect expenditures by recreationists. Estimates from the Censuses of Retail Trade and Services (U.S. Bureau of the Census, 1979a; 1979b) reveal that 38 percent of employment and sales in the three-county area can be attributed to recreation. Tourism and travel expenditures (1979-80) totaled $154 million (Valley National Bank of Arizona, 1981). Assuming an estimated $59,999 in receipts per each direct employee, more than $3 million in receipts (200,000 visits at $15 per visit) would be needed to increase personal income for the retail trade and service sectors by 1 percent. In the three-county area, trades and services account for only 13 percent of total personal income.

Under wilderness designation little change in total recreation use is expected. Recreationists such as hunters may not be able to travel into WSAs via off-road vehicles (ORVs), but they will have several alternatives to ORV travel. They can travel to the edge of a wilderness area and hike in, they can visit a nondesignated area with wilderness character, or they can choose not to recreate in such areas. Because significant portions of these WSAs are inaccessible to motor vehicles, recreation use within them is not likely to change much with wilderness designation. Publicity through the designation process could result in greater use, but increased use would not be sufficient to significantly change regional income.

IMPACTS TO ECONOMIC CONDITIONS

Hunting

Economic impacts attributed to hunting are translated from habitat and species (deer, javelina, quail) to hunter days and expenditures per day to gross expenditures to increased personal income and employment. The economic value of hunting is considered part of the recreation sector and would impact the same business sectors as would other forms of recreation.

Wilderness designation would inhibit vehicular access to some areas now visited and could slightly increase the number of big-game animals in the area. Much of the WSAs, however, are inaccessible to motorized vehicles, and the number of animals is not expected to increase sufficiently to warrant the Arizona Game and Fish Department's increasing the allocation of hunting permits in the areas involved.

Four hunt areas include nearly all of the WSA lands: Units 24A, 28, 30A, and 31. The WSAs represent 7 percent of the federal lands and 3 percent of the total land in these units. Wilderness designation might cause a shift to other slightly less preferable use areas when vehicular access is a problem.

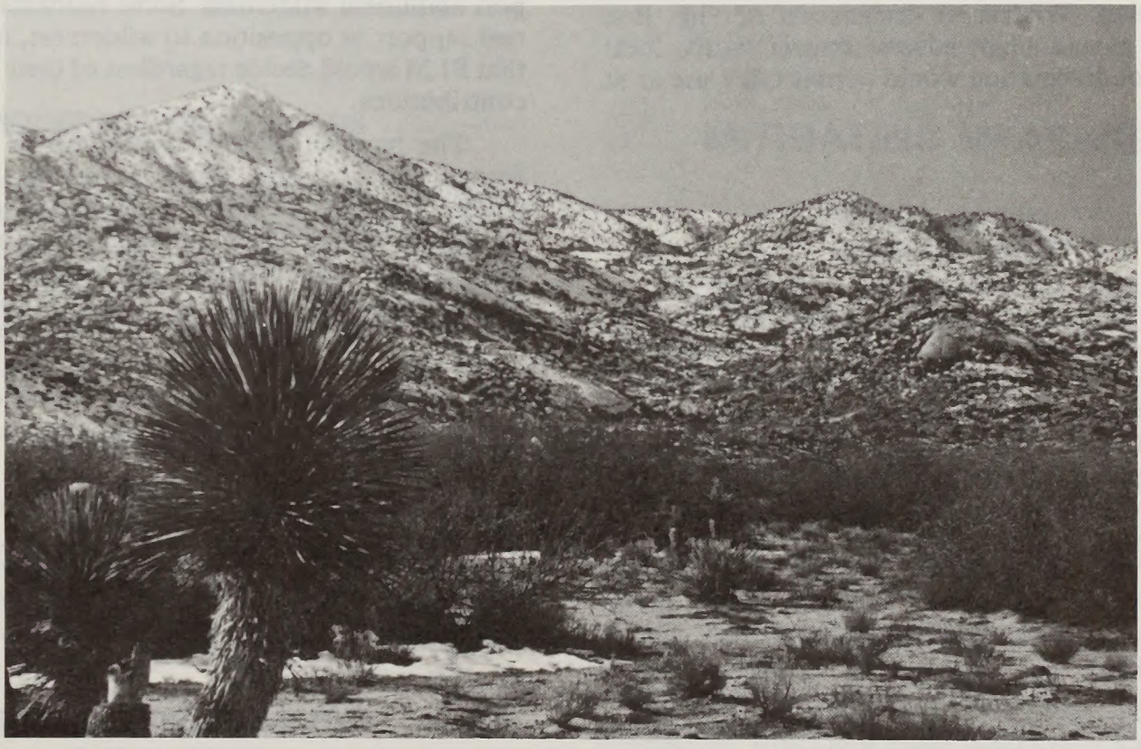
Minerals

The economics of wilderness designation on mineral development are not known. Mineralization in the three-county area and the area's economic dependency on mining are apparent from examining income and employment for the area. Economic impacts resulting from the development of any deposits found would depend upon the size of the deposit, ore percentages, economic values, and the state of technology. Low copper values have contributed significantly to unemployment in the mineral industries, but this situation could change in a relatively short time.

If the number of mining claims is any indication of the probability of the existence of economic deposits that will be developed, the likelihood of economic impacts on mineral development would decrease with the alternatives that designate the area as wilderness.

Conclusion

None of the alternatives would have significant regional economic impacts.



Government Peak, just under 7,600 feet high, marks the high point on the east side of the Dos Cabezas Mountains in Happy Camp Canyon WSA.

ENVIRONMENTAL CONSEQUENCES

LOCAL IMPACTS

Apart from Gila Box and Turtle Mountain WSAs, no significant local economic impacts are expected from wilderness designation.

Gila Box

All Wilderness. ORV users spend an estimated 5,000 annual recreation visitor days in the Gila Box. Wilderness designation could reduce the revenue attributable to such recreation by $75,000.* Realistically, however, ORV use would probably shift to other areas, reducing the overall impact to the local economy.

No Wilderness and Proposed Action. These alternatives would not designate Gila Box WSA as wilderness and would thus allow recreation use there to continue as at present.

Enhanced Wilderness and Moderate Wilderness. These alternatives woulc exclude from wilderness designation more miles of the Gila and San Francisco Rivers in the WSA. As a result, 2,500 recreation visitor days of ORV use would be precluded and $37,500 in revenue could be lost. As under *All Wilderness*, however, use is expected to shift to other areas, reducing the overall economic impact.

Conclusion. Wilderness designation of Gila Box WSA might have a slight adverse impact on the local economy. Nondesignation would permit ORV use as at present.

Turtle Mountain

All Wilderness and Enhanced Wilderness. Although range improvements do not necessarily conflict with wilderness, in Turtle Mountain WSA the cumulative impacts of planned projects beyond those already existing and approved would impair wilderness quality. If projects proposed by the AMP were not built, the stocking rate would be held below the projected carrying capacity by 360 AUMs annually, resulting in a potential annual earnings loss of $1,800. This analysis is based on an average income for an AUM of $5.00 (BLM, 1981b). Because of the inability to fully stock the range, ranch values would not increase to their potential — an estimated $125/AUM or $45,000 (BLM, 1981b). The income and ranch values foregone in Turtle Mountain WSA are estimated to amount to 4 percent of existing values.

*Based on calculations by the BLM regional economist.

No Wilderness, Moderate Wilderness, and Proposed Action. These alternatives would have no economic impacts on livestock grazing in Turtle Mountain WSA.

Conclusion. Although wilderness designation of Turtle Mountain WSA would have a moderate adverse impact to the local rancher, adverse impacts to the area's economy would be slight. Nondesignation of the WSA would not affect the area's economy.

IMPACTS TO SOCIAL ELEMENTS AND ATTITUDES

Implementing the *Proposed Action* or any of the alternatives would not significantly affect population trends or totals at the local, county, or regional level. Public perceptions and attitudes in the two-state region would not significantly change towards wilderness and BLM. The large population of the region (including Tucson, Phoenix, Albuquerque, and El Paso) represents a broad range of attitudes and perceptions concerning the BLM and wilderness.

ALL WILDERNESS

Interviews with residents of the five counties in the EIS area reveal that few county or local residents support additional wilderness. Some residents expressed no real support or opposition to wilderness, only the belief that BLM would decide regardless of their knowledge or contributions.

The basis of general opposition to wilderness is formed from several common feelings expressed by county residents. They fear the adverse impacts of wilderness on mining and ranching. They also think that adequate amounts of wilderness already exist and that no more is needed. Additional areas would only attract "outsiders" to "their lands." Finally, area residents could not associate any benefits with wilderness designation. They were, however, aware of the cost to the government to conduct the wilderness review.

NO WILDERNESS

No Wilderness would not significantly affect the attitudes and perceptions towards wilderness of local and county residents.

ENHANCED WILDERNESS

Because this alternative designates all or portions of every WSA under study as wilderness and 75 percent of the acreage proposed for designation under *All Wilderness*, it would generate essentially the same public opposition as would *All Wilderness*.

MITIGATING MEASURES

The head of Little Doubtful Canyon in Peloncillo Mountains WSA lies in a small open saddle flanked by rock outcrops.

MODERATE WILDERNESS

Although *Moderate Wilderness* would designate only five WSAs as wilderness, it still would include such controversial areas as the Gila Box WSA, location of the proposed Camelsback Dam. Opposition from residents of the four Arizona counties would still be strong.

PROPOSED ACTION

The *Proposed Action* would designate portions of Needle's Eye, Black Rock, Fishhooks, and Happy Camp Canyon WSAs. Although this alternative would eliminate many resource use conflicts, wilderness designation would still generate opposition from local residents.

CONCLUSION

Public perceptions and attitudes toward wilderness would not be significantly impacted by any of the alternatives.

MITIGATING MEASURES

DESIGNATION

The *Wilderness Management Policy* (BLM, 1981a) describes how BLM will manage certain activities and uses that are permitted within wilderness but not entirely compatible with the concept of wilderness. The management policy provides direction to mitigate the following activities:

- Access to state or private lands
- Valid mining claims and the existing private rights that accompany such claims
- Maintenance of existing livestock facilities

Many of these potential conflicts have been resolved through the wilderness study and environmental assessment processes, but some conflicts potentially still remain. Specific management actions that deal with these conflicts will be addressed in specific wilderness management plans developed for each area designated wilderness.

ENVIRONMENTAL CONSEQUENCES

NONDESIGNATION

Specific laws and regulations require BLM to protect threatened and endangered plant and animal species and cultural and visual resources. BLM is also required to manage the public lands to prevent unnecessary resource degradation. In the event of nondesignation, BLM can use a variety of management tools to protect and preserve wilderness resources. The following options are effective tools in the management and preservation of special public land resources.

Wild and Scenic Rivers. Wild, scenic, and recreational river designations provide management and protection of rivers in a free-flowing condition. The rivers and their immediate environments, which possess outstanding scenic, recreational, geologic, cultural, or other similar values, would be protected for the benefit and enjoyment of present and future generations.

Research Natural Areas (RNAs). RNA status provides management and protection of public lands having natural characteristics of unusual, scientific, or other special interest. The primary purpose of RNAs is research and education. For an area to be designated an RNA it must have one of the following characteristics: (1) a typical representation of a common plant or animal association, (2) an unusual plant or animal association, (3) a threatened or endangered species, (4) a typical representation of common geologic, soil, or water features, or (5) outstanding or unusual geologic, soil, or water features.

Outstanding Natural Areas (ONAs). ONA status manages for the greatest amount of recreation use possible without damage to the natural features that make an area outstanding. Outstanding features are defined broadly as unusual natural characteristics.

Areas of Critical Environmental Concern (ACECs). ACEC status manages public land to prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes. To be designated an ACEC, an area must be of national or international significance and must be threatened by adverse change — a reduction or loss of values — unless special management attention is applied.

Off-Road Vehicle (ORV) Designation. This option designates public lands open, closed, or limited to ORV use. In recognizing ORV use of the public lands, it establishes controls on the use and operation of ORVs. The objective is to provide for ORV use, protect the public lands, promote user safety, and reduce user group conflicts.

Planning for Recreation and Visual Resources. Recreation and visual resource planning provides a systematic process within the BLM land use planning system to identify recreation and visual values on the public lands and to prescribe management practices to ensure these values are maintained on a long-term, sustained yield basis.

The above management tools are all options for management of special public land resources. Table 4-6 shows the nominations and proposals now being considered by BLM. They would all mitigate to some degree, potential adverse impacts of nondesignation.

UNAVOIDABLE ADVERSE IMPACTS

If any WSA is not designated wilderness, the risk of impairing wilderness values would increase. Mining, motorized vehicle use, and energy development would continue unconstrained by wilderness management, potentially degrading wilderness values over the long term.

Recreational opportunities and experiences would change under all alternatives. Restricting vehicle access could increase opportunities for solitude and primitive recreation, but it would adversely impact motorized vehicle use.

The adverse impacts of wilderness designation on mineral and energy exploration and development could not be avoided.

Subject to valid existing rights, all lands designated wilderness will be withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing, unless Congress specifically provides otherwise.

MITIGATING MEASURES

TABLE 4-6
MITIGATING MEASURES

WSA	Mitigation	Result of Mitigation
Needle's Eye	Wild and Scenic River	Protection of the Gila River and its immediate environment.
	ACEC	Protection of the Gila River and Mescal Creek, including outstanding scenic, animal, plant, and geologic features.
Black Rock	ACEC	Protection of outstanding scenic, geologic, archaeological, and wildlife values.
Fishhooks	ONA and ACEC	Protection of scenic canyons and landforms, riparian vegetation, and wildlife values in Fishhooks, McKinney, and Salt Creek Canyons.
Day Mine	ONA and ACEC	Protection of highly scenic canyons, wildlife values, and riparian vegetation of Markham Creek.
Gila Box	ONA	Protection of the highly scenic canyons of the Gila River and Eagle Creek.
	ACEC	Protection of the highly scenic canyons and wildlife, riparian, and geologic values of Eagle Creek and the Gila and San Francisco Rivers.
	Wild and Scenic River	Protection of the Gila River and Eagle Creek and their immediate environments.
Turtle Mountain	ONA and ACEC	Protection of scenic canyons, perennial streams, riparian vegetation, and wildlife habitat in Bonita Creek, Gila Box, Eagle Creek, and Trujillo Canyon.
Peloncillo Mtns.	RNA	Protection of Little Doubtful Canyon's vegetation.
	ACEC	Protection of natural vegetation and cultural and scenic values.
Happy Camp Canyon	RNA	Protection of vegetation in Howell Canyon and on Government Peak.
	ACEC	Protection of scenery, wildlife values, cultural values, vegetation, and riparian areas around Howell, Tar Box, and Happy Camp Canyons and near Government Peak.

ACEC - Area of Critical Environmental Concern
ONA - Outstanding Natural Area
RNA - Research Natural Area

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

All alternatives involve, to varying degrees, irreversible and irretrievable commitments of certain resources. The allocation of lands to such consumptive uses as mining, motorized vehicle use, and energy development would result in irreversible and irretrievable losses of wilderness values over the long term. On the other hand, wilderness designation would preclude future development of commodity resources but not irreversibly or irretrievably. Should a vital national interest be jeopardized by wilderness status, Congress could rescind its action and allow the needed resources to be developed.

ENVIRONMENTAL CONSEQUENCES

RELATIONSHIP BETWEEN SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The nine WSAs will be managed under the Interim Management Policy until Congress either releases the areas or designates them as wilderness. The period of this management phase cannot be identified, but the short term would involve 2 or more years after the final EIS and the wilderness study report are submitted to the President through the Secretary of the Interior. The WSAs are and will be managed with the nonimpairment criteria guiding other resource uses, subject to continuation of grandfathered uses and valid existing rights.

During the short term, man's environment will not change, nor will the uses be different from the present. Long-term productivity will depend upon the recommendations made by the President and the congressional decisions as to the areas designated wilderness and the areas released to other multiple-use management under BLM's planning system. The areas designated will be managed to preserve the wilderness qualities of the areas for future generations.

ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL

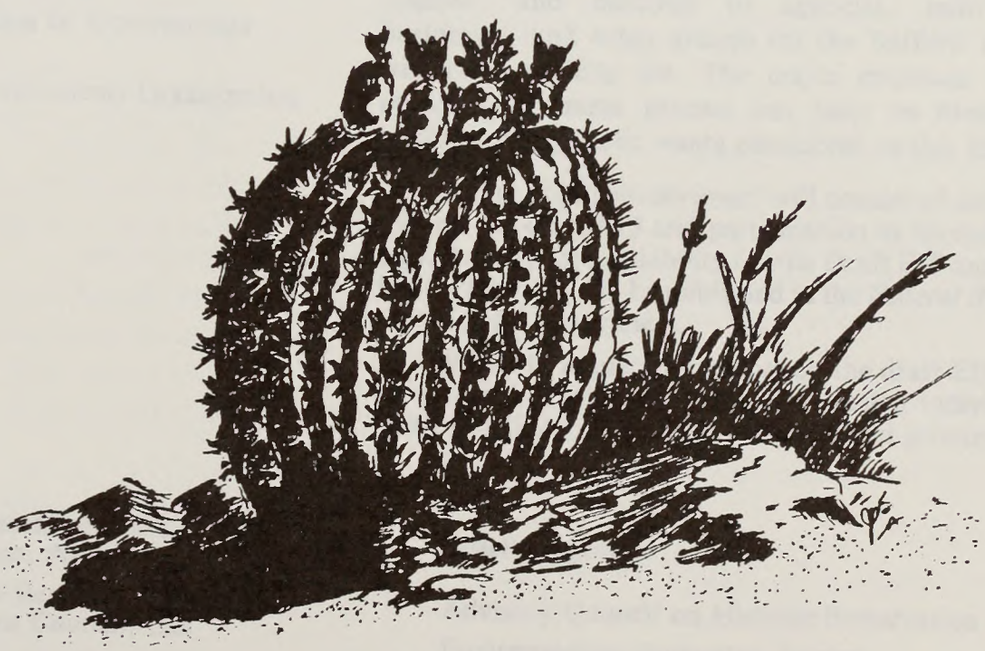
Energy use would not differ significantly for any alternative or mitigation measure. No conservation potentials are evident.

Chapter 5

CONSULTATION

AND

COORDINATION



CHAPTER 5
COORDINATION AND CONSULTATION

Coordination and consultation have been a continuing process beginning in 1978 with the wilderness inventory of BLM lands. The issue identification process for this EIS involved individual contacts with other federal agencies, state agencies, county governments, range users, the public, special interest groups, the District Grazing Advisory Board, and the District Advisory Council.

CONSISTENCY

The Federal Land Policy and Management Act requires that BLM plans be as consistent as possible with existing officially adopted and approved resource-related plans of other federal agencies, state agencies, local governments, and Indian tribes that may be affected. After extensive consultations, BLM found that no officially approved resource-related plans of state, local, or other federal agencies would conflict with wilderness designation of any of the WSAs. Parts of any plan, however, may conflict with wilderness designation. The following is a list of federal agencies, state agencies and local governments consulted.

Coronado National Forest

Apache-Sitgreaves National Forests

U.S. Geological Survey, Water Resource Division, Thatcher, AZ

Soil Conservation Service, Willcox, AZ

Bureau of Indian Affairs, San Carlos Agency, San Carlos, AZ

Bureau of Indian Affairs, Phoenix, AZ

New Mexico State Land Commission

Arizona State Land Department

Arizona State Parks Department

Central Arizona Association of Governments (CAAG), Florence, AZ

Southeastern Arizona Governments Organization (SEAGO), Bisbee, AZ

Cochise County, AZ

Gila County, AZ

Graham County, AZ

Greenlee County, AZ

Hidalgo County, NM

City of Bisbee

City of Douglas

City of Safford

City of Willcox

Coronado Resource Conservation and Development Area Council, Willcox, AZ

Southwestern New Mexico Resource Conservation and Development Area Council, Las Cruces, NM

U.S. AIR FORCE

Conversations with the U.S. Air Force brought training flights over all WSAs to BLM's attention. Although these flights could conflict with wilderness quality, the Wilderness Act does not restrict such flights over wilderness areas. If these flights become a problem in a designated wilderness area, BLM would confer with the Air Force to reach mutually agreeable solutions.

SAN CARLOS APACHE TRIBE

BLM contacted the San Carlos Apache Tribe through its Tribal Council and the Bureau of Indian Affairs concerning the WSAs next to the San Carlos Indian Reservation. BLM's wilderness proposals do not conflict with the Tribe's land use plans. The Tribe, however, is developing a new land use plan and has expressed some concerns over possible future conflicts with specific parts of the plan. BLM also contacted the Tribe with respect to the American Indian Religious Freedom Act to determine if wilderness designation would impact their rights under that law. No response was received.

PUBLIC INVOLVEMENT

An active public involvement process aided in developing this EIS. (See Scoping Section of Chapter 1) Public comments were gathered through workshops in Safford, Tucson, and Globe; personal contacts; news releases; and mailings to agencies, individuals, businesses, and other groups on the Safford District wilderness mailing list. The major emphasis of the public involvement process has been on identifying issues that the public wants considered in this EIS.

Future public involvement will consist of commenting on the draft EIS and participation in formal hearings. A notice of availability for the Draft EIS and dates for the hearings will be published in the *Federal Register* and in local newspapers.

BLM will request comments on the draft EIS from all affected grazing permittees, interested individuals, and the following agencies and interested groups.

Federal Agencies

Advisory Council on Historic Preservation

Environmental Protection Agency

CHAPTER 5
COORDINATION AND CONSULTATION

Department of Agriculture
- Forest Service
- Soil Conservation Service

Department of Defense
- Army Corps of Engineers
- United States Air Force

Department of Energy

Department of the Interior
- Bureau of Indian Affairs
- Bureau of Land Management, NM
- Bureau of Mines
- Bureau of Reclamation
- Fish and Wildlife Service
- Geological Survey
- Mineral Management Service
- National Park Service

Department of Transportation

Federal Energy Regulatory Commission

Arizona Elected Officials

Federal

Representative John McCain
Representative Jim McNulty
Representative Eldon Rudd
Representative Robert Stump
Representative Morris K. Udall
Senator Dennis DeConcini
Senator Barry Goldwater

State

Governor Bruce Babbitt
Representative Edward G. Guerrero
Representative Joe Lane
Representative E. C. "Polly" Rosenbaum
Representative Steve Vukcevich
Senator A. V. "Bill" Hardt
Senator Ed C. Sawyer

New Mexico Elected Officials

Federal

Representative Joe Skeen
Senator Jeff Bingaman
Senator Pete D. Domenici

State

Governor Tony Anaya

Arizona State Agencies

Arizona Agriculture and Horticulture Commission
Arizona Department of Mineral Resources
Arizona Department of Transportation
Arizona Department of Water Resources
Arizona Game and Fish Department
Arizona Indian Affairs Commission
Arizona Office of Arid Land Studies
Arizona Office of Economic Planning and Development
Arizona Office of Tourism
Arizona Outdoor Recreation Coordinating Commission
Arizona State Clearinghouse
Arizona State Historic Preservation Officer
Arizona State Land Department
Arizona State Oil and Gas Commission
Arizona State Parks
Arizona State Museum
Commission on Arizona Environment
Museum of Northern Arizona
Arizona State University
University of Arizona

New Mexico Agencies

New Mexico Bureau of Mines and Mineral Resources
New Mexico Department of Agriculture
New Mexico Department of Finance and Administration
New Mexico Department of Game and Fish
New Mexico Health and Environmental Department
New Mexico Highway Department
New Mexico Natural Resources Department
New Mexico State Historic Preservation Officer
New Mexico State Land Commission

Arizona County/Local Agencies

Central Arizona Association of Governments
Chairman, San Carlos Apache Indian Tribe
Cochise County Board of Supervisors

CHAPTER 5
COORDINATION AND CONSULTATION

Gila County Board of Supervisors
Graham County Board of Supervisors
Greenlee County Board of Supervisors
Mayor of Benson
Mayor of Clifton
Mayor of Duncan
Mayor of Globe
Mayor of Hayden
Mayor of Pima
Mayor of Safford
Mayor of Thatcher
Mayor of Willcox
Mayor of Winkelman
Southeastern Arizona Governments Organization

New Mexico County/Local Agencies

Hidalgo County Commissioners
Mayor of Deming
Mayor of Lordsburg
Mayor of Virden

Other Organizations

American Mining Congress
American Wilderness Alliance
Arizona Association of 4-Wheel Drive Clubs
Arizona Cattle Growers Association
Arizona Desert Bighorn Sheep Society
Arizona Desert Racing Association
Arizona Mining Association
Arizonans for Wild and Scenic Rivers
Arizona Small Mine Operators Association
Arizona Wildlife Federation
Coronado Resource Conservation and Development Area Council
Defenders of Wildlife
Friends of the Earth
Izaak Walton League of America
League of Women Voters
Mining and Oil Companies
National Audubon Society
National Council of Public Land Users
National Parks and Conservation Association
National Public Lands Task Force
Natural Resources Defense Council
New Mexico Natural History Institute
Safford District Grazing Advisory Board
Safford District Public Lands Advisory Council
Sierra Club
Southern Arizona Hiking Club
Southwest Environmental Service
Southwestern New Mexico Resource Conservation and Development Area Council
The Nature Conservancy
The Wilderness Society
Tucson Gem and Mineral Society
Tucson Rod and Gun Club
Upper Gila River Association
Wildlife Management Institute
Wildlife Society

SAFFORD DISTRICT WILDERNESS EIS
STATUS AND ALTERNATIVE MAPS

LEGEND

WSA
PUBLIC
STATE
PRIVATE
INDIAN RESERVATION
NON-FEDERAL MINERALS (within WSA)

Vehicular Access Features

PRIMITIVE TO UNIMPROVED
GRADED AND DRAINED
GRAVEL
PAVED: LOW TYPE
PAVED: HIGH TYPE

FREEWAY

FAP 13 — FEDERAL-AID PRIMARY
481 — FEDERAL-AID SECONDARY
5310 — FEDERAL-AID URBAN

17 66 — HIGHWAY ROUTE MARKER
89 37

HIGHWAY INTERCHANGE
7.2 — MILEAGE BETWEEN POINTS
MP 320 — MILEPOST
RAILROAD AND STATION
GRADE SEPARATIONS
HIGHWAY TUNNEL
HIGHWAY BRIDGE

Development and Topographic Features

AIRSTRIP
COMMERCIAL AIRPORT
MUNICIPAL AIRPORT
MILITARY AIRFIELD
HELIPORT
INTERMITTENT STREAM
NARROW STREAM (LIVE)
WIDE STREAM WITH DOCK OR BOAT LANDING
LAKE, RESERVOIR OR POND WITH DAM
SPRING
TAILINGS POND
DIKE OR LEVEE
NATIONAL BOUNDARY
STATE BOUNDARY
COUNTY BOUNDARY
G — GAS LINE

Basemap © New Mexico State Highway Department

T — TRANSMISSION LINE
T — UNDERGROUND COAXIAL CABLE
NATIONAL FOREST BOUNDARY
PARK OR RESERVATION BOUNDARY
RANCH OR FARM
11 — DWELLING, OR DWELLINGS
TENANT HOUSES
17 — SEASONAL DWELLING, OR DWELLINGS
TRAILER PARK
CEMETERY
HOSPITAL OR FIRST AID STATION
SCHOOL
CHURCH
PAROCHIAL SCHOOL
GOVERNMENT BUILDING
COURTHOUSE
LIBRARY
LAW ENFORCEMENT OFFICE
FIRE STATION
TOWN HALL OR COMMUNITY HALL
CORRECTIONAL INSTITUTION
POST OFFICE
BUSINESS, OR TRADING POST
COMMUNICATION TOWER
WELL
WINDMILL
WATER RETARDING OR DIVERSION STRUCTURE
WATER TANK
FACTORY OR INDUSTRIAL PLANT
MINE OR PROSPECT
POWER PLANT
TRANSFORMER STATION
WAREHOUSE
STOCKYARD OR CORRAL
GRAVEL PIT
DUMP—GARBAGE, RUBBISH AND OTHER
JUNKYARD—AUTO, SCRAP METAL
SEWAGE DISPOSAL PLANT
S C — STATE OR COUNTY HIGHWAY MAINTENANCE YARD
PICNIC GROUND
CAMPSITE
BALL FIELD
ROADSIDE REST
SP — SMALL PARK
C — GOLF COURSE OR COUNTRY CLUB
AMUSEMENT PARK OR RODEO GROUNDS
OBSERVATION OR LOOKOUT TOWER
INDIAN RUIN
SMALL MONUMENT, RESERVATION, OR POINT OF INTEREST
COUNTY SEAT
OTHER CITIES AND POPULATED PLACES
INCORPORATED CITY
CONGESTED AREA, CULTURE NOT SHOWN

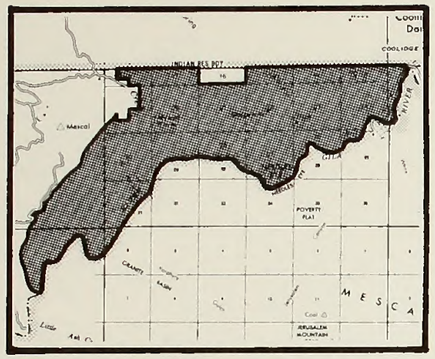
Land Survey Information

TOWNSHIP OR RANGE LINE
SECTION LINE
Sage — TRIANGULATION STATION (WITH NAME)

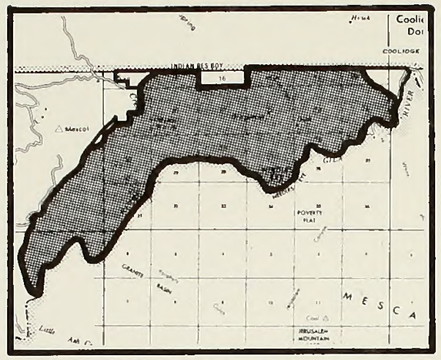
Basemap © Arizona Department of Transportation

NEEDLE'S EYE 4-1A

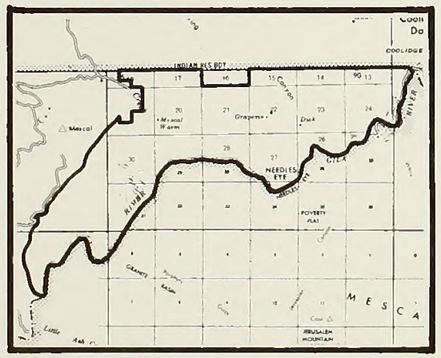
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management–Safford District
DECEMBER 1982 BASEMAP © ADOT



ALL WILDERNESS and ENHANCED WILDERNESS



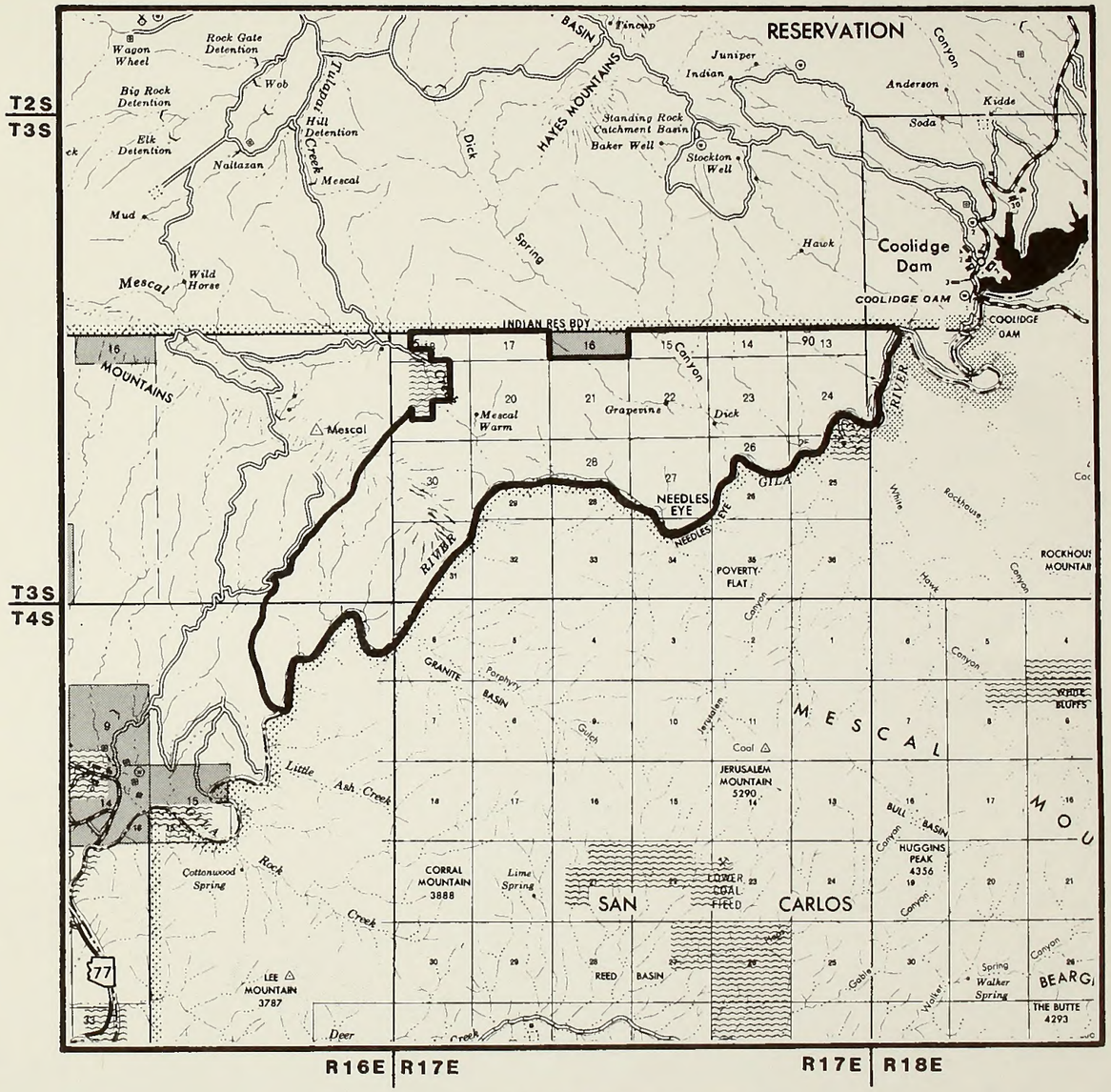
MODERATE WILDERNESS and PROPOSED ACTION



NO WILDERNESS

WSA BOUNDARY

AREA PROPOSED FOR WILDERNESS DESIGNATION

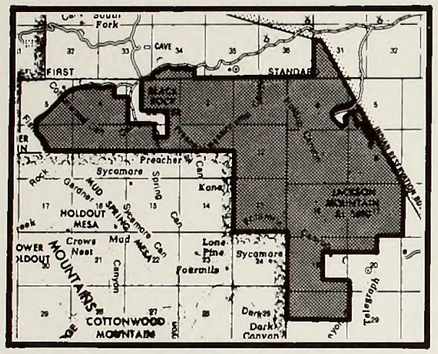


MAP 1

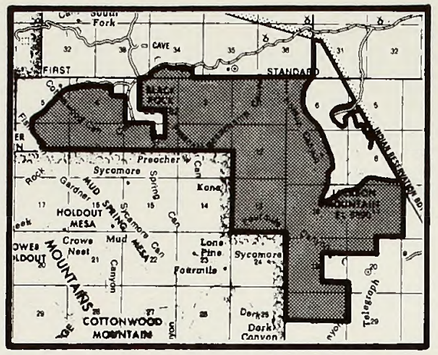
MODERATE WILDERNESS
and PROPOSED ACTION

BLACK ROCK 4-8

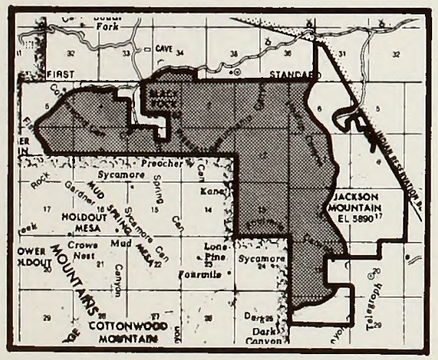
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management–Safford District
DECEMBER 1982 BASEMAP © ADOT



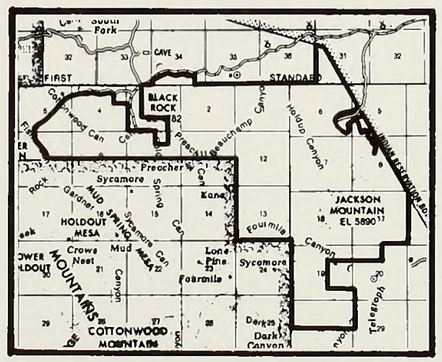
ALL WILDERNESS



ENHANCED WILDERNESS



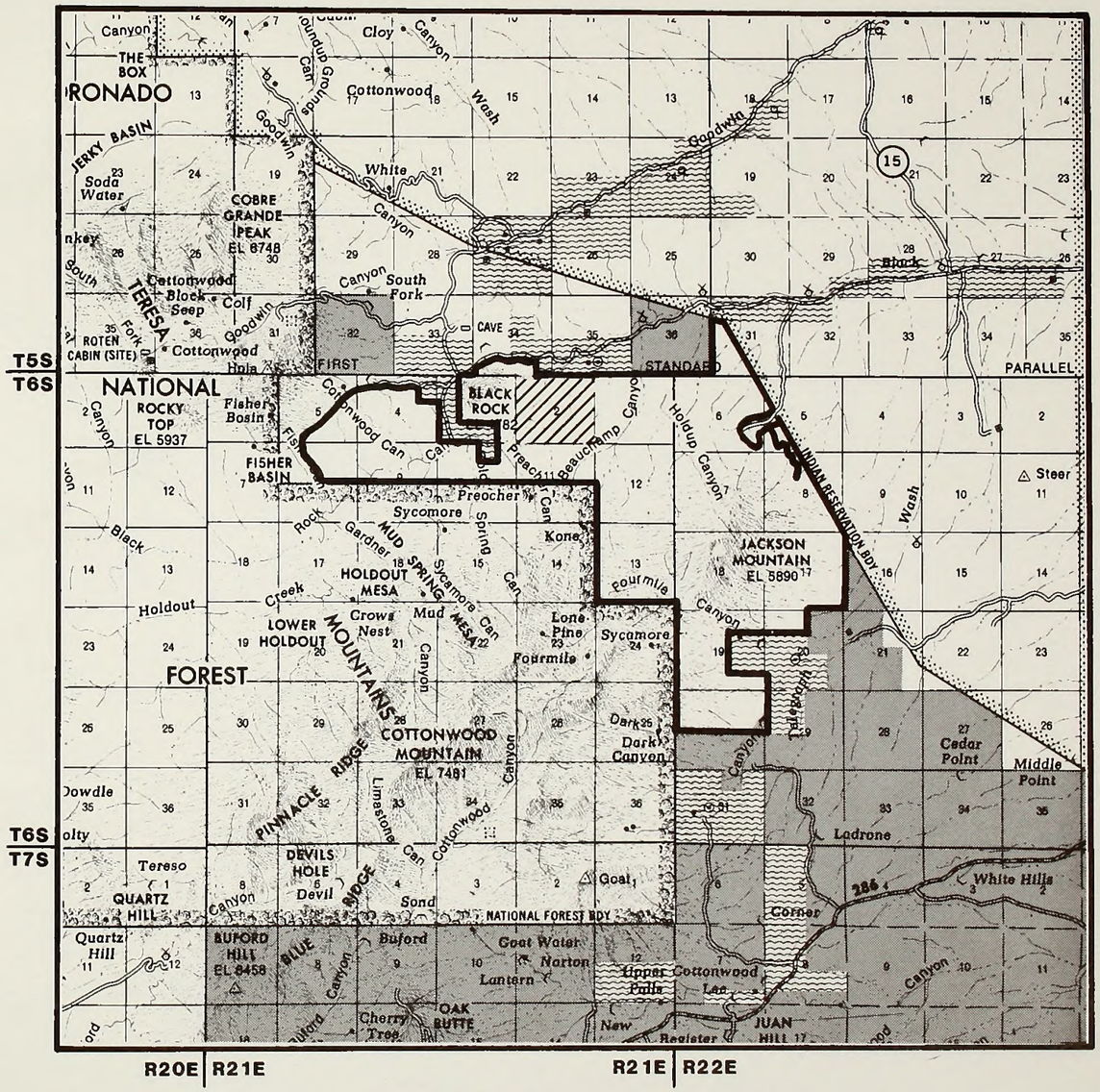
MODERATE WILDERNESS and PROPOSED ACTION



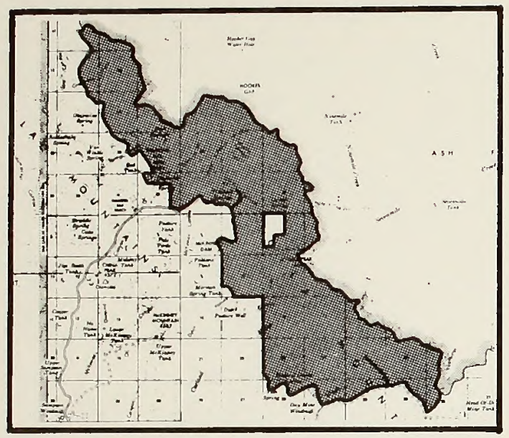
NO WILDERNESS

WSA BOUNDARY

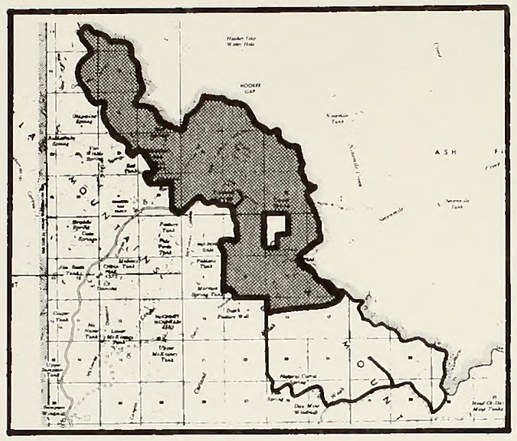
AREA PROPOSED FOR WILDERNESS DESIGNATION



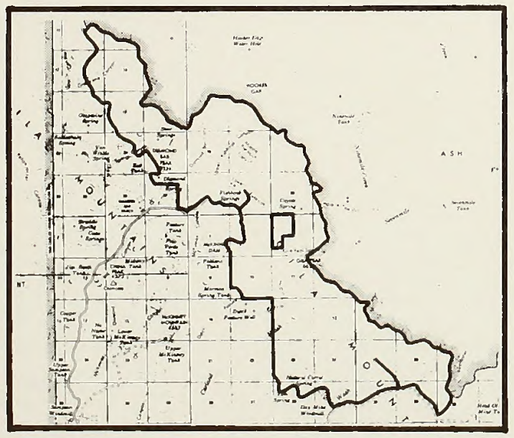
MAP 2



ALL WILDERNESS and ENHANCED WILDERNESS



MODERATE WILDERNESS and PROPOSED ACTION



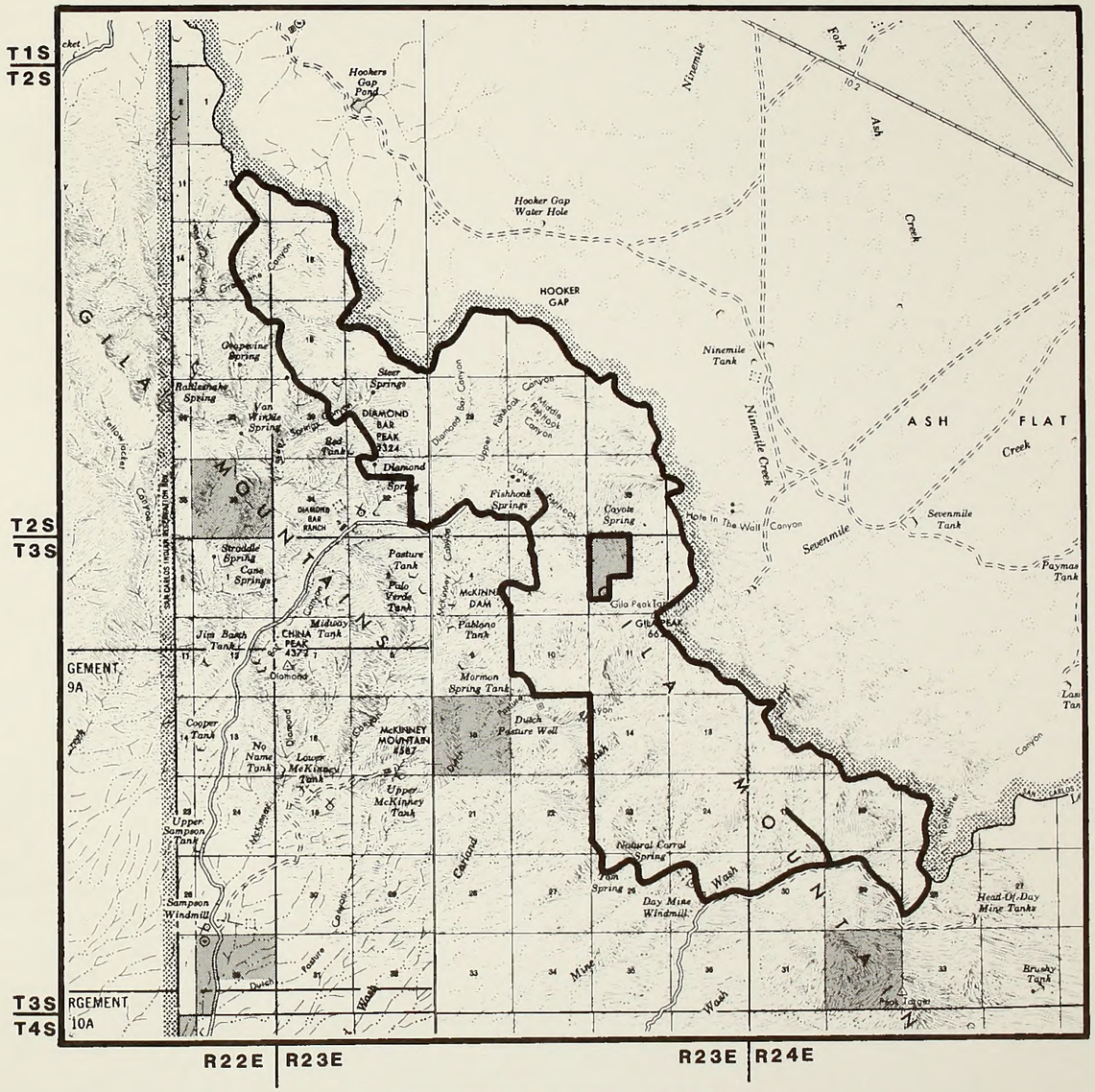
NO WILDERNESS

WSA BOUNDARY

AREA PROPOSED FOR WILDERNESS DESIGNATION

FISHHOOKS 4-14

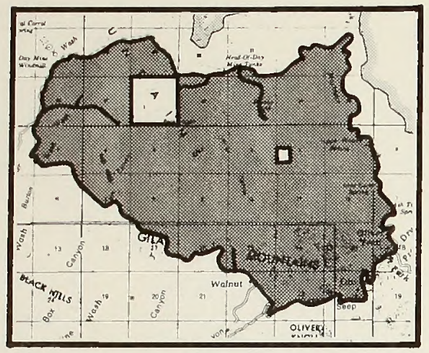
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management–Safford District
DECEMBER 1982 BASEMAP © ADOT



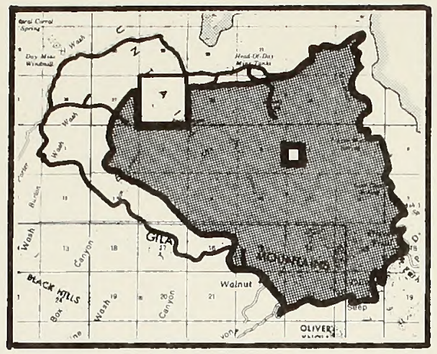
MAP 3

DAY MINE 4-16

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management–Safford District
DECEMBER 1982 BASEMAP © ADOT

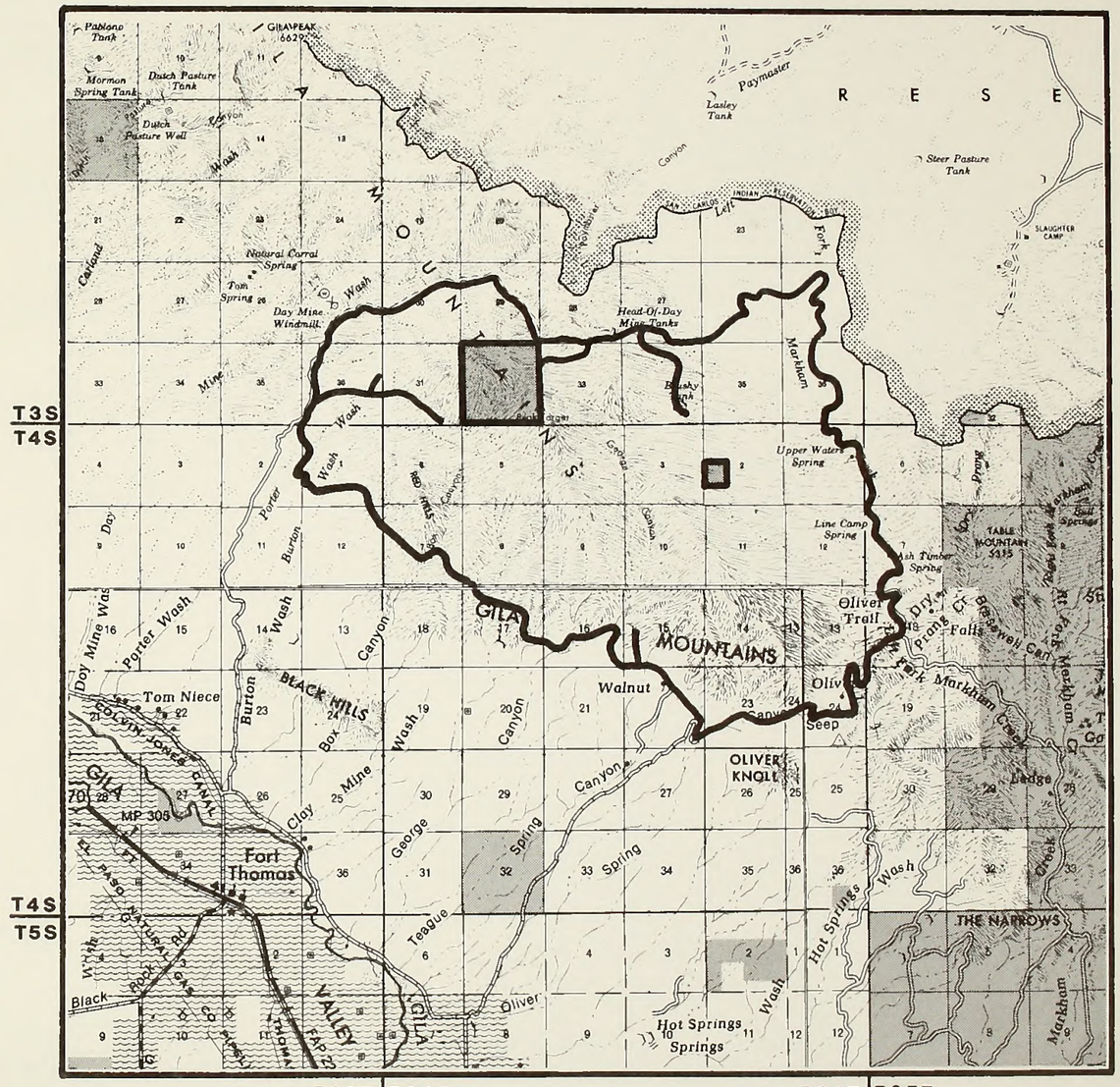


ALL WILDERNESS

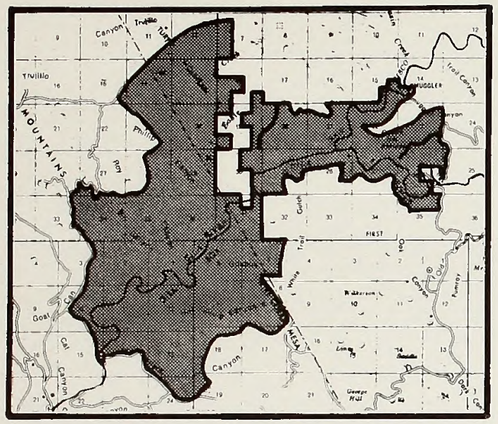


ENHANCED WILDERNESS

MODERATE WILDERNESS, PROPOSED ACTION and NO WILDERNESS



MAP 4



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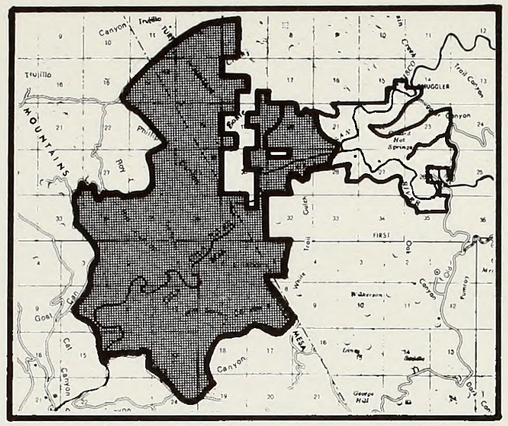
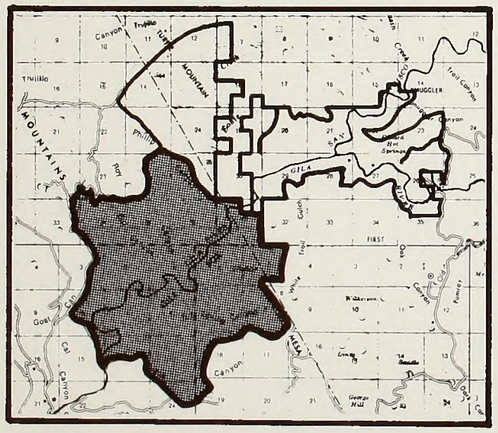
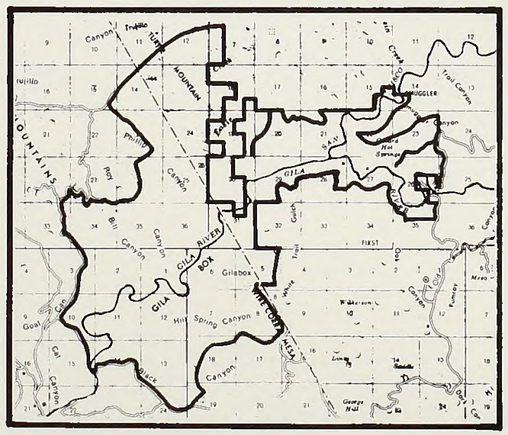


ENHANCED WILDERNESS



MODERATE WILDERNESS



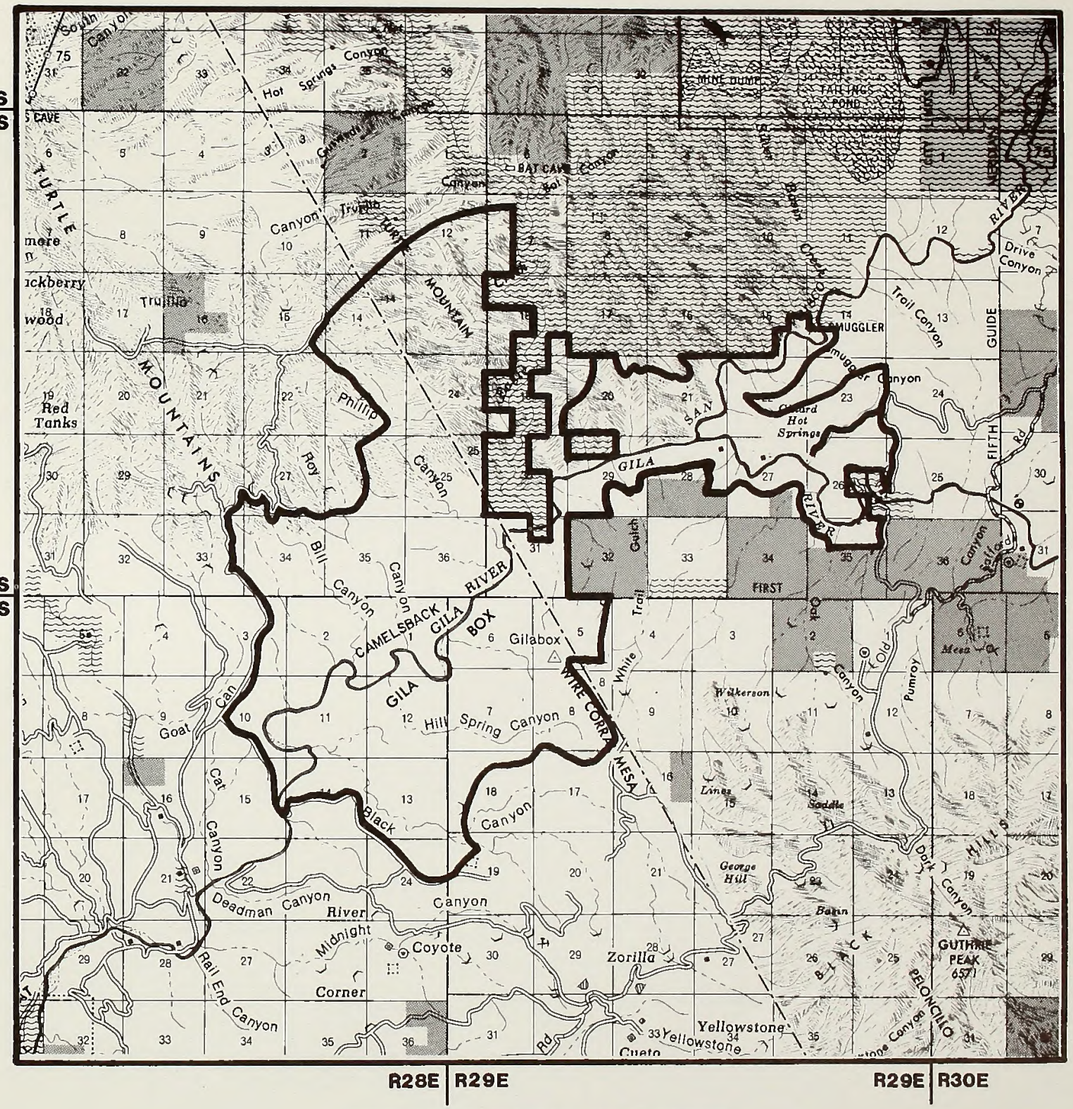
PROPOSED ACTION and
NO WILDERNESS

WSA BOUNDARY

AREA PROPOSED FOR
WILDERNESS DESIGNATION

GILA BOX 4-22/23/24 (A)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management–Safford District
DECEMBER 1982 BASEMAP © ADOT

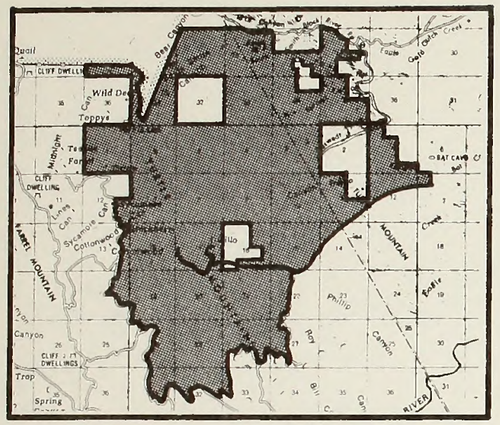


WSA
PUBLIC
STATE
PRIVATE
INDIAN RESERVATION

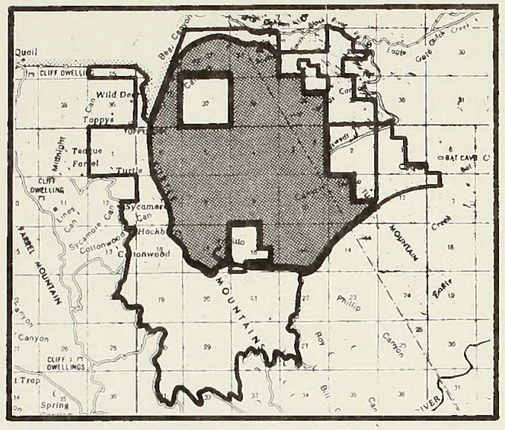
0 1 2 3 4
SCALE IN MILES

N

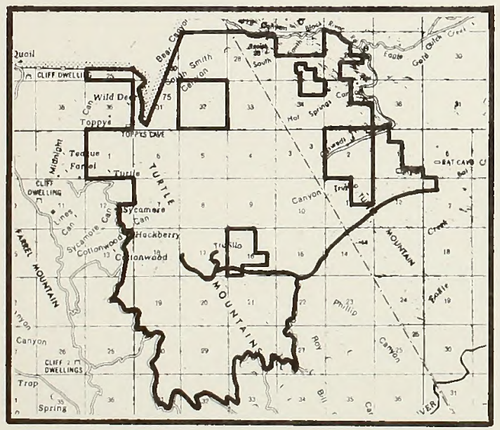
MAP 5



ALL WILDERNESS



ENHANCED WILDERNESS



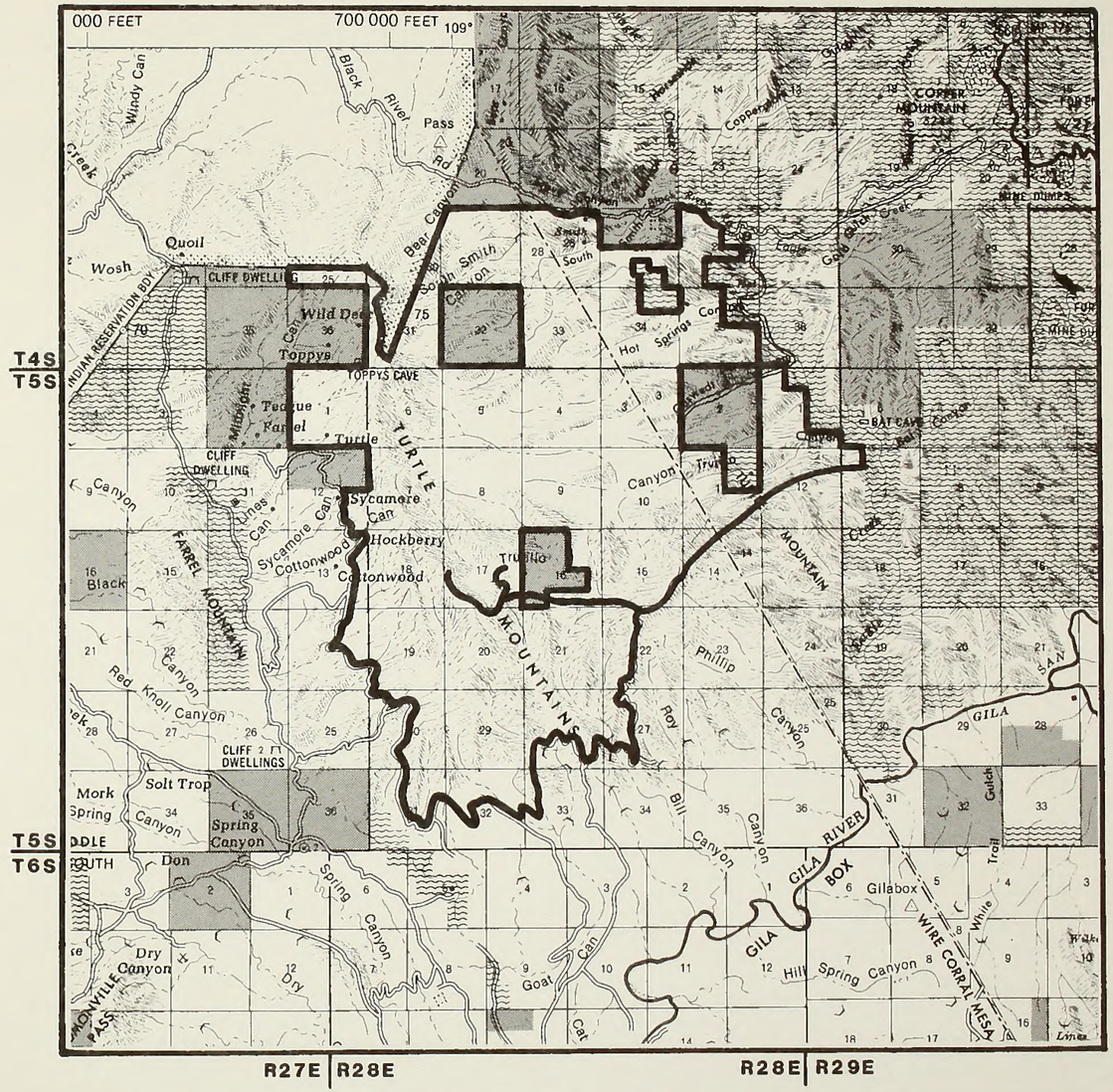
MODERATE WILDERNESS,
PROPOSED ACTION and
NO WILDERNESS

WSA BOUNDARY

AREA PROPOSED FOR
WILDERNESS DESIGNATION

TURTLE MOUNTAIN 4-22/23/24 (B)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management-Safford District
DECEMBER 1982 BASEMAP © ADOT

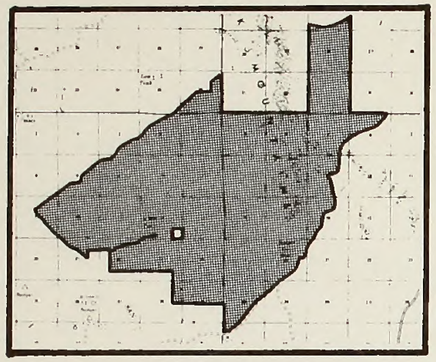


WSA
PUBLIC
STATE
PRIVATE
INDIAN RESERVATION

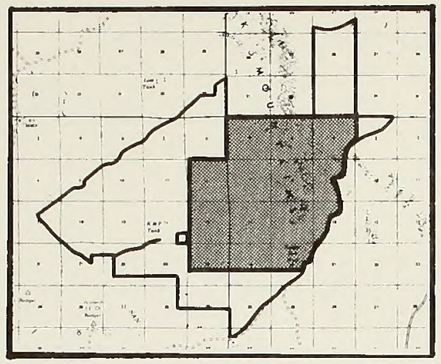
0 1 2 3 4
SCALE IN MILES

N

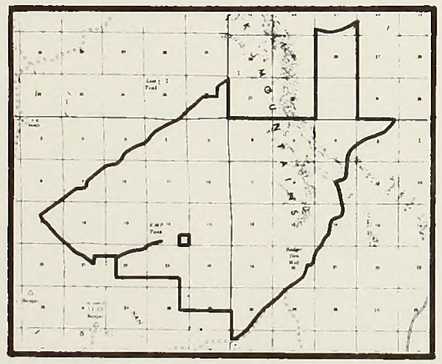
MAP 6



ALL WILDERNESS



ENHANCED WILDERNESS



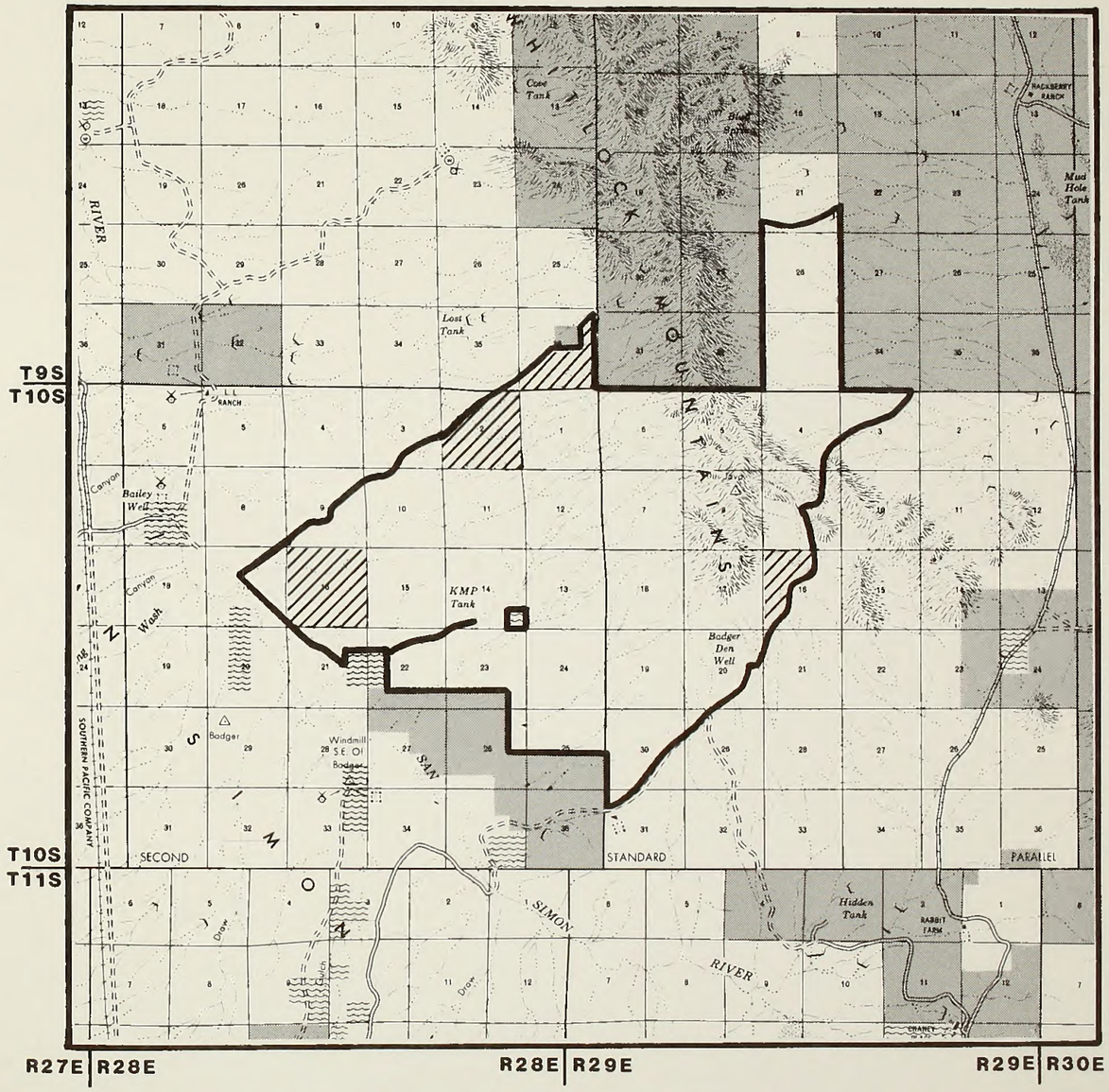
MODERATE WILDERNESS,
PROPOSED ACTION and
NO WILDERNESS

WSA BOUNDARY

AREA PROPOSED FOR
WILDERNESS DESIGNATION

JAVELINA PEAK 4-48

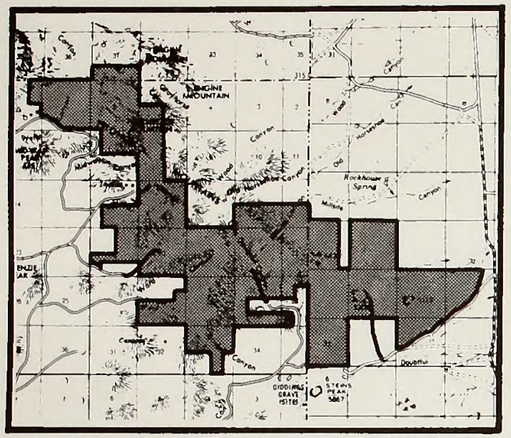
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management–Safford District
DECEMBER 1982 BASEMAP © ADOT



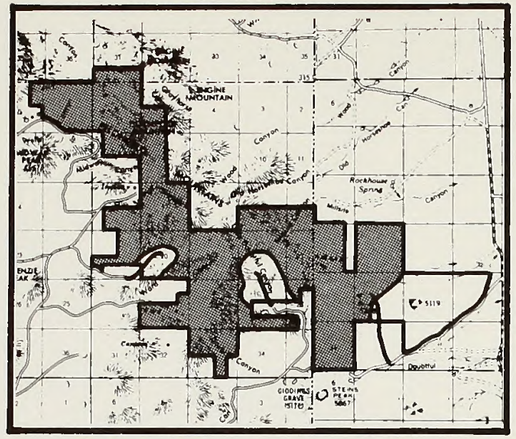
MAP 7

PELONCILLO MOUNTAINS 4-60

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management–Safford District
BASEMAP © NMSHD DECEMBER 1982 BASEMAP © ADOT



ALL WILDERNESS



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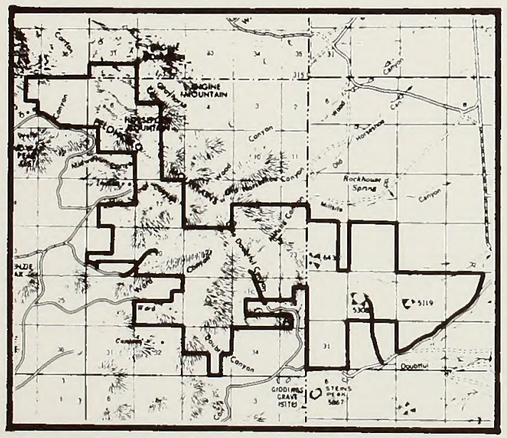
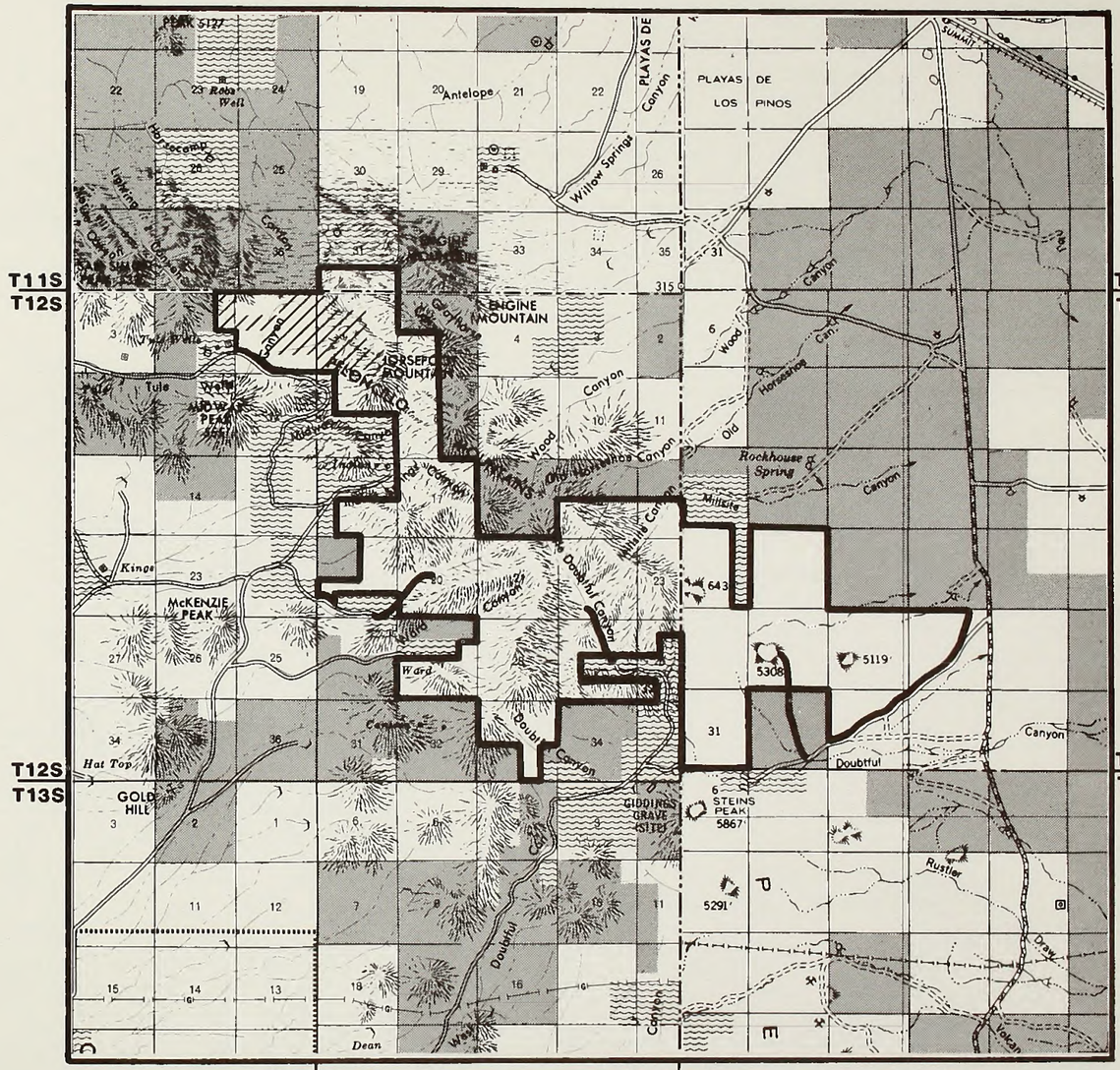


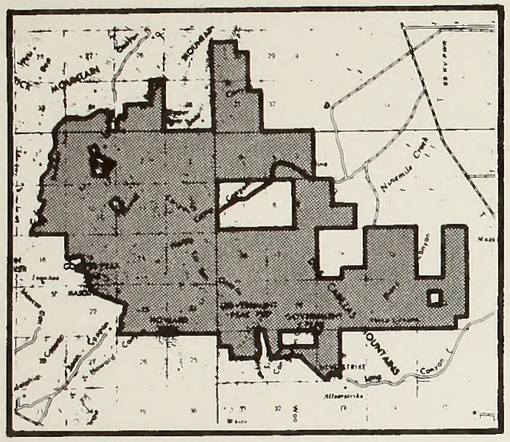
MODERATE WILDERNESS,
PROPOSED ACTION and
NO WILDERNESS

WSA BOUNDARY

AREA PROPOSED FOR WILDERNESS DESIGNATION



MAP 8



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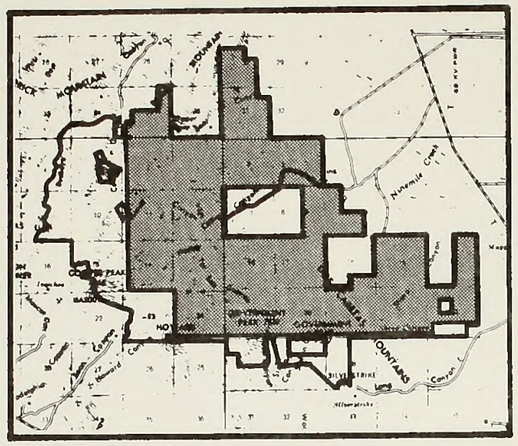

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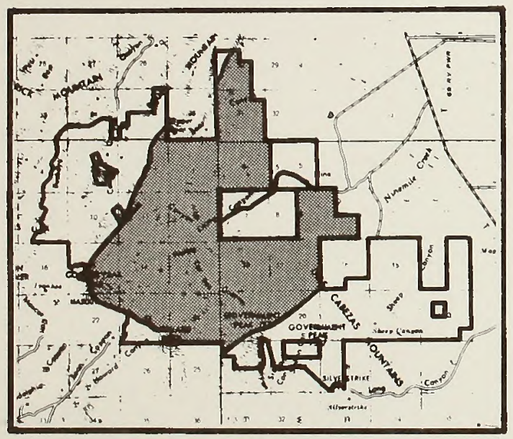
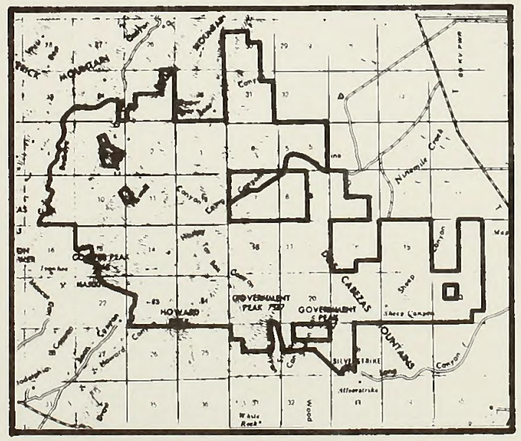


MODERATE WILDERNESS and PROPOSED ACTION



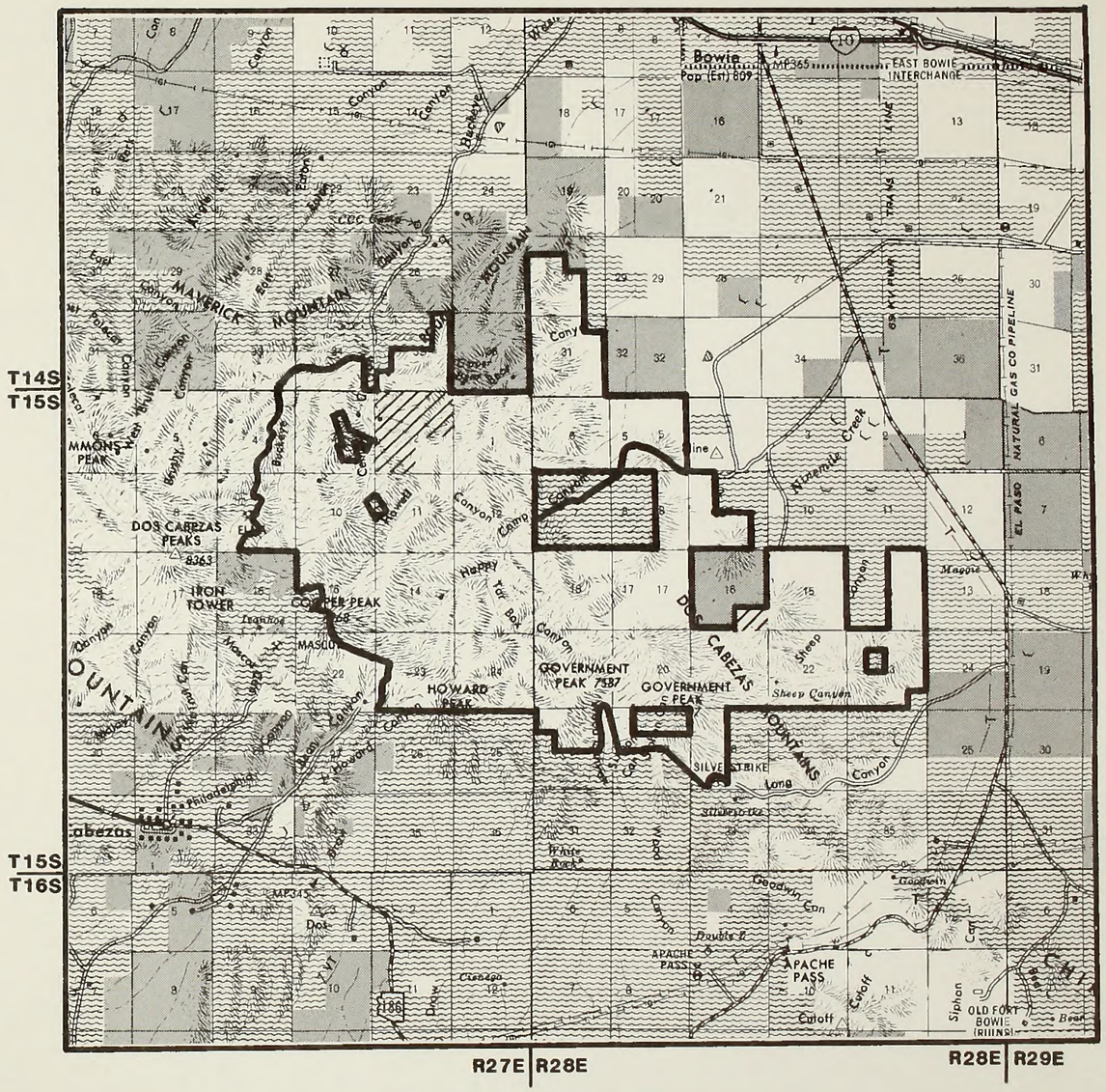
NO WILDERNESS

WSA BOUNDARY

AREA PROPOSED FOR WILDERNESS DESIGNATION

HAPPY CAMP CANYON 4-65

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management–Safford District
DECEMBER 1982 BASEMAP © ADOT



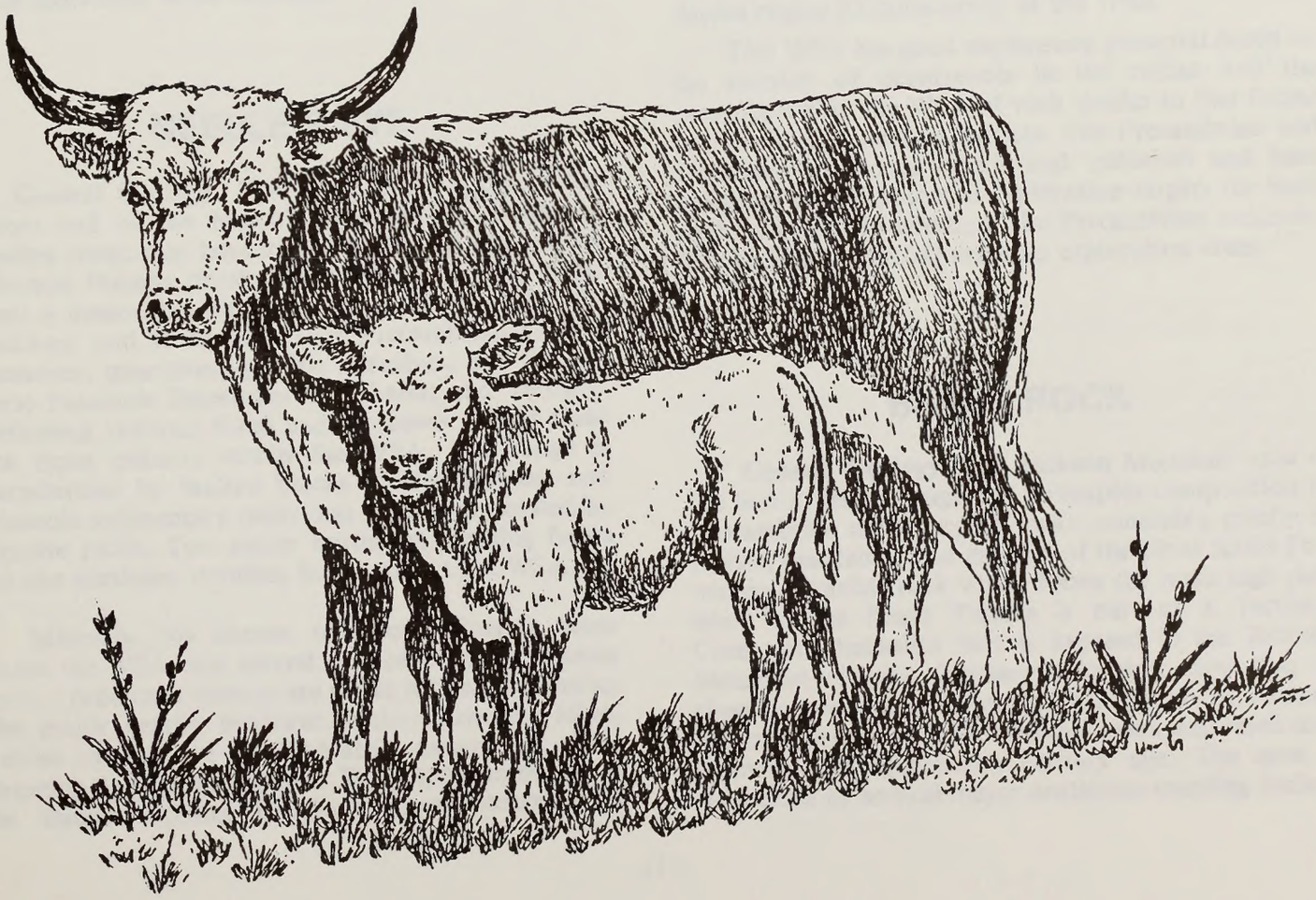
WSA
PUBLIC
STATE
PRIVATE
INDIAN RESERVATION
NON-FEDERAL MINERALS (within WSA)

0 1 2 3 4
SCALE IN MILES

-N-

MAP 9

APPENDIX



APPENDIX

APPENDIX
GEOLOGY AND MINERALIZATION OF THE WSAs

This appendix discusses information on geology, minerals, and energy for each of the WSAs and includes brief discussions on the mining and exploration history and mineral potential of each area.

Even though the U.S. Geological Survey (USGS) has classified all the lands in all the WSAs as not being prospectively valuable for oil and gas, Arizona has recently been the scene of intensive oil and gas exploration, based on the theory that the overthrust belt crosses the state in a wide band from the northwest to the southeast. Other portions of the overthrust belt have been the scene for large discoveries of oil and gas in Utah and Wyoming, as well as farther north in Canada and farther south in Mexico. Several geophysical operators are engaged in activities ranging from magnetic surveys to vibroseiser lines. In addition to these programs, millions of dollars have been spent on three deep exploration wells. So far, no oil and gas have been discovered in southeast Arizona. Because of the extent of the exploration programs and the amount of money being spent on them and until new data can show otherwise, BLM will consider all land in the vicinity to have a certain amount of production potential.

The lands in the Needle's Eye, Black Rock, Fishhooks, Peloncillo Mountains, and Happy Camp Canyon WSAs are classified by USGS as not being prospectively valuable for geothermal resources. The other WSAs have geothermal resources, which are discussed in the individual WSA writeups.

NEEDLE'S EYE

General Geology. Needle's Eye WSA lies at the eastern end of the Mescal Mountains, a northwest trending range that borders the southwest edge of the Colorado Plateau physiographic province. The range forms a monoclinal block with strata dipping 20°-25° southwest and is composed of Precambrian schists, limestones, quartzites, granitic intrusives, and diabase dikes; Paleozoic limestones and shales; and Tertiary-Cretaceous volcanic flows and intrusives. All of these rock types outcrop within the WSA. The range is characterized by faulted blocks of Precambrian and Paleozoic sedimentary rocks that have been isolated by intrusive rocks. Two major northwest trending faults and one northeast trending fault transect the WSA.

Minerals. No known economic minerals occur within the WSA, but several past producers and some current producers were or are active within a few miles. The major nearby producer is the Christmas Mine, 5 miles southwest of the WSA at the eastern end of the Dripping Springs Mountains. This copper mine lies in the Banner Mining District in ore occurring as replacements in metamorphosed Paleozoic limestones. Other minerals that have been produced in the Banner District include gold, silver, lead, zinc, mercury, and tungsten.

The Saddle Mountain Mining District lies 4 miles southwest of the WSA and has produced copper, gold, silver, lead, and zinc. Much of the Saddle Mountain District mineralization occurs in Tertiary-Cretaceous volcanics, chiefly andesite.

The Stanley Butte Mining District lies 10 miles southeast of the WSA. This district has been a producer of gold, silver, iron, copper, barite, fluorspar, lead, and garnet. Mineralization occurs in Paleozoic limestones and Tertiary-Cretaceous volcanics.

Coal was mined a few miles south of the WSA in the Deer Creek Basin in the early 1900s, but high ash content and thinness of the beds make it economically insignificant. Asbestos occurs about 8 miles north of the WSA in Precambrian limestone. The zeolite mineral chabazite occurs 3 miles west of the WSA; exploratory drilling is occurring on several claims to evaluate this deposit.

Uranium is being produced from Precambrian quartzite in the southern Pinal Mountains 12 miles northwest of the WSA. There are several other radioactive occurrences in the southern Pinal and northern Mescal ranges, all in Precambrian quartzite. This quartzite also hosts several uranium deposits in the Sierra Ancha region 35 miles north of the WSA.

This WSA has good exploration potential based on the number of occurrences in the region and the presence within the WSA of rock similar to that found in surrounding mining districts. The Precambrian and Paleozoic sedimentary beds and intrusives and later volcanics are all potential exploration targets for hard rock minerals. In addition, the Precambrian sedimentary beds are potential uranium exploration areas.

BLACK ROCK

General Geology. The Jackson Mountain area of the Santa Teresa range has a complex composition of Precambrian metamorphic rocks, consisting chiefly of schists, quartzites, and gneisses of the Pinal Schist Formation. Granitic rock which forms the main high portions of the Santa Teresas is part of a Tertiary-Cretaceous batholith that is exposed in the Jackson Mountain vicinity. Tertiary volcanics, consisting of rhyolite-welded ash-flow tuffs are also exposed. Around the exposures of rock are weakly to well-indurated conglomerate of Quaternary-Tertiary age. The area is transected by several major northwest trending faults.

Minerals. The only known mineralization within Black Rock WSA is coarse-grained crystalline fluorspar occurring as fissure vein deposits in a southeast striking fault zone. Other prospects occur on Jackson Mountain, but the only production history is from the above fluorspar deposit. This deposit was a producer of some 1,200 tons in the 1950s. Some prospect pits a few miles south of the WSA exposed similar fluorspar veins in porphyritic quartz monzonite cut by northeast striking rhyolitic dikes. It has been concluded that this past producer is of possible commercial interest but that more detailed work is needed to determine the amount of ore reserves (ADMR, 1975).

Exploration prospects 2 miles north of the WSA have found copper mineralization. Other prospects in this same vicinity found iron mineralization, and some prospects just outside the WSA's western boundary found copper. Uranium occurrences associated with iron oxides occur in small test pits about 5 miles north and 5 miles south of the WSA.

The Aravaipa and Stanley Butte Mining Districts include part of the Santa Teresa Mountains to the west of the WSA. These districts have a history of lead, zinc, copper, silver, and gold production from a variety of geologic environments, including Precambrian metamorphic formations, Paleozoic sediments, Tertiary-Cretaceous granites, and Tertiary volcanics.

Potential for other mineral production within the WSA appears to be low. Most of the mineralization around the WSA occurs in areas of granodiorite or quartz monzonite, whereas the WSA consists predominantly of Pinal Schist. However, the exact extent of the batholith that occurs in the western portion of the WSA is unknown. Mineralization similar to that caused by batholith masses in the Aravaipa and Stanley Butte Districts could occur in the WSA. The WSA also contains diabase dikes that could be associated with mineralization.

FISHHOOKS AND DAY MINE

General Geology. Fishhooks and Day Mine WSAs lie in the Gila Mountains of the Highland region of the Basin and Range physiographic province. The Gilas are a northwest trending range composed almost entirely of Tertiary volcanics. The WSAs consist mostly of intermediate volcanics with some areas of younger basaltic flows and pyroclastics and some Tertiary intrusives. Some Paleozoic limestones and quartzites outcrop a few miles from the WSAs.

Minerals. No known economic minerals occur within either WSA, although copper and manganese occur nearby to the west and south. Just west of Fishhooks WSA, a copper exploration prospect occurs in mid-Tertiary andesite flows and porphyritic rocks. A few miles west of the Fishhooks WSA another copper prospect occurs in a Cambrian quartzite/Devonian-Carboniferous limestone contact. The mineralization consists chiefly of malachite. Between these two prospects are two underground exploration prospects in an exposure of Devonian-Carboniferous limestone.

On the south edge of Day Mine WSA, secondary copper minerals occur in mid-Tertiary andesite flows and porphyritic rocks. Other copper prospects occur in Tertiary volcanics south and east of Day Mine WSA. A manganese prospect just south of Day Mine WSA occurs in calcite veins in mid-Tertiary porphyritic andesite.

The lack of mineral occurrences within the WSAs and the few occurrences nearby makes the potential for production appear low. The Lone Star Mining District, however, lies in the same mountain range to the southeast of the WSAs. Several copper deposits have been discovered in this district, including the Phelps Dodge-Safford and Kennecott-Safford deposits. Both of these contain millions of tons of ore reserves. The San Juan Mine located between the two has already produced significant amounts of copper, mining over a million tons of ore. These and other deposits of the district are related to quartz monzonite porphyry stocks, the Lone Star quartz diorite stock, or other Tertiary-Cretaceous plutons that lie under the younger Tertiary volcanics. Similar mineralization could occur under the WSA's Tertiary volcanics. An exploration company has reported an anomaly that extends into the southwestern portion of the Day Mine WSA. Unmapped outcrops of limestone and porphyry intrusives lie near the magnetic anomaly. This data seems to confirm that mineral potential exists within this WSA.

Energy. The Day Mine WSA contains land classified as prospectively valuable for geothermal resources. Hot springs and water wells with temperature gradients exceeding 164°C/km lie just 6 miles southwest of the WSA.

GILA BOX AND TURTLE MOUNTAIN

General Geology. These WSAs lie on the northern end of the Peloncillo Mountains, a north-south trending fault-block range typical of the Basin and Range physiographic province. The WSAs lie in the transition zone between the Colorado Plateau province and the Basin and Range province. The area is composed of volcanic and volcaniclastic rocks, ranging from Pleistocene to Oligocene. These flows and pyroclastics are chiefly andesites and basaltic andesites. A major northwest trending fault lies along the southwestern edge of the WSAs. Several northwest trending faults run along the eastern edge of the WSAs.

Minerals. The only reported mineral occurrence is manganese, found in lenses and short irregular pods in the eastern portion of the Gila Box WSA. Managanese also occurs 2 miles northeast of the Turtle Mountain WSA in veins running through granite porphyry. Just to the southwest of the WSAs, the Dorothy B gold placers have been intermittently worked up to the present. The gold occurs in Quaternary river gravels along the Gila River and Bonita Creek. Just northeast of Gila Box WSA, similar gold placers occur along the San Francisco River and its tributary gulches.

The Morenci Mining District, northeast of the WSAs, is one of the most significant copper producers in the United States. The second largest open pit copper mine in North America lies in an area of supergene enrichment of a disseminated pyrite-chalcopyrite protore in a Laramide quartz monzonite intrusive. Mining in the district progressed from small oxidized replacement deposits to enriched sulfide veins to the present porphyry ore. Aside from numerous other copper mines in the district associated with the Laramide intrusives and later diabase dikes, the district has also produced gold and silver occurring in veins cutting Paleozoic limestone and shale.

The Lone Star Mining District lies in the Gila Mountains a few miles west of Gila Box and Turtle Mountain WSAs. Several large porphyry copper deposits have been discovered in this district. Millions of tons of ore are identified at the Kennecott, Phelps Dodge, San Juan, and Inspiration properties. The copper deposits are associated with Tertiary-Cretaceous granodiorite and quartz monzonite plutons. Several areas of copper mineralization occur west of Gila Box WSA in fissure veins within Tertiary-Cretaceous andesites and basalts.

On the west-central edge of the Gila Box and directly south of the Turtle Mountain WSA, oxide copper mineralization occurs along fractures in the Tertiary volcanics. Drilling in a 1,500-foot-deep drillhole reportedly found an oxidized monzonite porphyry with copper values of 0.2 percent.

The Tertiary basalt and andesite underlying the WSA has yielded no mineral production in the past. The area, however, cannot be readily dismissed as having no mineral potential, since it lies between Arizona's largest open pit mine and a relatively recent discovery of a district estimated to have over a billion tons of porphyry copper ore. Though the Morenci Mine lies near outcrops of Precambrian granitic rocks and Paleozoic limestones and quartzites, the Lone Star District is largely covered with relatively unremarkable volcanics of Tertiary-Cretaceous age. Whether a Laramide pluton hosting a porphyry copper deposit lies under the volcanic cover of the WSAs remains a matter of speculation.

Energy. The USGS classifies all lands within both WSAs as prospectively valuable for geothermal resources. Gillard Hot Springs, on the north bank of the Gila River in the eastern part of Gila Box WSA, discharge the hottest water in the southwest outside the Jemez Mountains of New Mexico. Temperatures range between 80° to 84° C, and geochemical studies indicate probable temperatures of 135°-170° C at depth. These studies have been substantiated by recent geophysical studies in the area. Seven miles to the northwest, Eagle Creek Hot Springs, just outside the eastern edge of the Turtle Mountain WSA, discharge into a tributary of Eagle Creek. Shallow wells have tapped water up to 56° C. Geochemical studies suggest a possible 120°-150° C geothermal reservoir at depth. Both the Gillard and Eagle Creek Hot Springs occur in a northwest trending fault zone that crosses the eastern part of both WSAs, and geothermal potential along the fault is the same as at the hot springs (Witcher, 1980).

JAVELINA PEAK

General Geology. The Whitlock Mountains, on the eastern side of the San Simon Valley, consist of mid-Tertiary volcanics ranging from basalt to rhyolite. The mountains are north by northwest trending and cut across the northeast portion of the WSA. The remainder of the WSA is composed of Quaternary-Late Tertiary sedimentary deposits. Two northwest trending faults cut across the WSA. A dome flow complex with an eruptive center at Powerline Pass, just north of the WSA, probably formed during late Miocene-early Oliogocene times.

Minerals. No known economic minerals occur within the WSA. The zeolite mineral chabazite occurs a few miles south of the WSA in a bedded deposit in the San Simon Valley, known as the Bowie chabazite deposit. Current production from various open pits is estimated at 2,000 tons per year. It is not known whether the chabazite bed extends into the lower areas of the WSA. Clinoptilolite occurs just north of the WSA in deposits unrelated to the bedded Bowie chabazite deposit. This clinoptilolite deposit doesn't appear to have the same production potential as the Bowie chabazite deposits.

North of the WSA, on the north flank of Dry Mountain, uranium minerals occur within Pliocene-Pleistocene lacustrine strata. The uranium mineralization has been explored by pits, dozer cuts, and a shaft. Extensive beds of diatomaceous material occur within the Pliocene lacustrine strata in the general area of the uranium deposits. Pierce, however, stated that the poor quality and lateral changes of material in surface exposures didn't offer encouragement for high purity diatomite production (Richter and others, 1981). These strata occur in the WSA, but no evidence of mineralization has been detected.

The potential for other minerals is unknown, although the presence of metallic minerals can be speculated. Commenting on the geologic map of the Whitlock Mountains and vicinity, Richter stated that "No metallic occurrences are known within the map area, but upper Mesozoic-Lower Cenozoic intrusive and extrusive rocks that contain significant porphyry copper deposits in the Safford area, 25 km to the northwest, may underlie the map area at relatively shallow depth" (Richter and others, 1981).

Energy. In 1927 oil was reported to be struck at an artesian well just outside the southeastern tip of the WSA. At 1,200 feet a 22.5 foot-thick deposit of oil sand was encountered, bringing up a showing of oil from underneath a conglomerate consisting of gravel cemented by lime. There are no records of any production from this well.

The WSA includes lands classified by the USGS as prospectively valuable for geothermal resources. Investigations by the Geothermal Group of the Arizona Bureau of Geology and Mineral Technology show good potential in the area for direct heat use of geothermal resources. The oil well at the southeastern tip of the WSA encountered an artesian well with waters at 41° C. This well continues to flow from a conglomerate aquifer capped by siltstone and clay. Another well 2.5 miles to the northeast reportedly discharged 34° C water in the late 1970's. This well lies next to the WSA but has no pump and is unused. According to Witcher (1980), more wells 1,500 to 2,000 feet deep would likely find 40°-50° C water and might produce artesian flow exceeding 200 gallons per minute. Though a deep intermediate temperature resource (100°-150° C) is not confirmed, chemical geothermometry predicts a deep temperature of 104°-132° C.

PELONCILLO MOUNTAINS

General Geology. The Peloncillo Mountains are composed of Tertiary volcanics lying above Paleozoic-Mesozoic sedimentary layers. Basin and Range faulting resulted in a horst block with a north-south axis. The WSA portion of the Peloncillos consists entirely of mid-Tertiary volcanics ranging from rhyolite to basalt. Several northwest striking faults run through the WSA.

Minerals. No known economic minerals occur within the WSA. Manganese occurs a few miles south of the WSA along the Arizona-New Mexico border in a mid-Tertiary andesite flow. The Steins Pass Mining District, located southeast of the WSA in New Mexico, has produced lead, zinc, copper, silver, and small amounts of gold and tungsten. One mine just south of the WSA produced significant amounts of gold and silver. The Peloncillo Mining District lies to the west of the Steins Pass District and about 6 miles south of the WSA. The possibilities for economic mineralization in this district are not favorable (Keith, 1973). The prospects for mineralization within the WSA are based on the theory that the mid-Tertiary volcanics present may cover potential ore bodies and must be considered largely speculative.

HAPPY CAMP CANYON

General Geology. Dos Cabezas Mountains comprise the bulk of the WSA and are a typical block-faulted range of the Mexican Highland section of the Basin and Range physiographic province. The Precambrian basement complex under the WSA consists of Pinal Schist and granitic intrusives. This is overlain by a series of Mesozoic-Paleozoic sedimentary strata, with some areas covered with Tertiary-Cretaceous volcanics. Existing structures are probably due to extensive folding, faulting, and other intrusive activity during the Laramide. Several northwest trending faults occur throughout the range, and some of these faults cut through the WSA.

Minerals. Happy Camp Canyon WSA lies within the Dos Cabezas-Teviston Mining District, which has produced about 100,000 tons of ore. Minerals produced include gold, copper, lead, silver, and iron. The mineralization generally occurred in fissure zones and replacement veins cutting through metamorphosed sedimentary beds and porphyrytic intrusives. The Buckeye Mine lies inside the northwestern portion of the WSA. This underground mine produced gold with silver and lead by-products from quartz veins occurring in Precambrian granitic rocks cut by dikes of diabase and rhyolite and andesite porphyries. An effort is underway to bring this mine back into production.

The Silver Strike Mine lies just outside the southeastern part of the WSA. This underground mine produced lead and silver with tungsten, zinc, and copper by-products from ore occurring in a quartz plug within Mesozoic-Paleozoic sedimentary layers.

The most intense concentration of mining activity occurred just south and west of the WSA, where several mines produced gold, silver, lead, zinc, and copper. Two of these mines, the Gold Prince and the Dives, each produced over 10,000 tons of gold ore. A major fault system related to this mineralization runs east to west along the southern edge of the WSA separating Cretaceous shale and Precambrian granite.

Another area of mineralization lies just outside the western boundary of the WSA. A large amount of copper ore has been mined in this area from veins in Paleozoic limestones and Laramide intrusives. The Mascot Mine produced about 60,000 tons of ore, and the Elma Mine produced about 8,000 tons of ore. Iron ore was also produced from magnetite occurring as replacement deposits.

In addition to the old producers of gold, silver, lead, copper, and iron in the vicinity, other minerals also occur. Uranium occurs just south of the WSA boundary, tungsten occurs along the northern and southern boundaries, manganese occurs in some of the gold and copper workings to the south and west, and fluorspar occurs on the northwest and southern edges of the WSA.

Other reported mineral occurrences in the Dos Cabezas-Teviston District include bismuth, beryllium, zinc, marble, and semiprecious gemstones. Some beryllium was produced from open cut workings in an area just inside the WSA's southeastern boundary.

The number of mineral occurrences in and around the WSA show strong potential for mineral development. While most of the known mineralization occurs just to the south and west of the WSA, this does not preclude mineralization in the interior of the WSA. Though much of the WSA consists of Pinal Schist, the area also contains the Precambrian granitic rocks that bear much of the mineralization of the Dos Cabezas-Teviston District. The WSA also contains areas of Tertiary and Cretaceous volcanics, which are also associated with extensive mineralization throughout the district. In addition, Keith mentions the potential for a more significant discovery than those previously made in the district: "The known ore deposits of the Dos Cabezas and Teviston Mining Districts appear to be relatively small, spotty, and low-grade veins and contact metamorphic bodies. However, the widely scattered and varied mineralization, and favorable geologic formations and structures suggest that possibilities still exist in the area for large, low-grade, disseminated copper deposits" (Keith, 1973).

GLOSSARY, REFERENCES,

AND INDEX

GLOSSARY

ADMINSTRATIVELY ENDORSED WILDERNESS AREA. An area that the President of the United States has recommended to Congress as suitable for wilderness designation.

AIR QUALITY CLASSES. Classes established by the Environmental Protection Agency that define the amount of air pollution considered significant within an area. Class I applies to areas where almost any change in air quality would be considered significant; Class II applies to areas where the deterioration normally accompanying moderate well-controlled growth would be considered insignificant; and Class III applies to areas where deterioration up to the national standards would be considered insignificant.

ALLOTMENT. A land area where one or more operators graze their livestock. It generally consists of public land but may include parcels of private and state-owned lands. The number of livestock and season of use are stipulated for each allotment.

ALLOTMENT MANAGEMENT PLAN (AMP). A livestock grazing management plan for a specific allotment, based on multiple-use resource management objectives. The AMP considers livestock grazing in relation to other uses of the range and in relation to renewable resources — watershed, vegetation, and wildlife. An AMP establishes the seasons of use ,the number of livestock to be permitted on the range, and the rangeland developments needed.

ANIMAL UNIT. Considered to be one mature (1,000 pounds) cow or the equivalent based upon average daily forage consumption of 26 pounds dry matter. (Range Term Glossary Committee , 1974).

ANIMAL UNIT MONTH (AUM). The amount of forage needed to sustain one cow or its equivalent for 1 month.

ANNUAL (EPHEMERAL) PLANT. A plant that completes its life cycle and dies in 1 year or less (Range Term Glossary Committee , 1974).

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC). A public land area where special management attention is needed to protect life and safety from natural hazards or to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife , or natural systems or processes.

CATCHMENT. A structure built to collect and retain rainwater from an upstream drainage area. It typically consists of a gently sloping impervious surface (apron) onto which rainwater collects before flowing into a storage tank. A slickrock catchment uses a natural slickrock surface as an apron.

CENSUS COUNTY DIVISION (CCD). A county division used by U.S. Bureau of the Census for listing some census data.

CHERRYSTEM ROAD. A dead-end road extending into and surrounded by a wilderness study area (WSA) but not within its boundaries. Such roads may lead to range developments, mines, or inholdings. Cherrystemming is the delimiting of WSAs to exclude cherrystem roads.

CLIMAX. The final stable community in an ecological succession, which can reproduce itself indefinitely under existing conditions.

COCHISE CULTURE. Prehistoric culture of southeast Arizona and southwest New Mexico believed to have begun over 10,000 years ago and to have lasted until 500 B.C. or later. The Cochise culture's economy was based on gathering wild plant foods and hunting small game. Settlements were temporary.

COLOR. One of the four basic elements of visual resources, color is a phenomenon of light or visual perception that enables one to distinguish between othewise identical objects, a hue as contrasted with black, white, or gray. As perceived in the landscape, color is usually most prominent in the vegetaion but may be expressed in the soil, rocks, or water and may vary with time of day, time of year, and weather. See Form, Line , and Texture.

CRITICAL MINERALS. Minerals essential to the national defense of the United States, which though difficult to procure , are easier to procure than strategic minerals, because they can be domestically produced, obtained in more adequate quantities, or are less essential than strategic minerals. Nevertheless, critical minerals need some degree of conservation and distribution control. See Strategic Minerals.

CULTURAL RESOURCE INVENTORY. A descriptive listing and documentation of cultural resources, including photographs and maps; the processes of locating, identifying , and recording sites, structures, building objects, and districts through library and archival research ; information from persons knowledgeable about cultural resources; and on-the-ground field surveys of varying levels of intensity. See Cultural Research Inventory Classes.

CULTURAL RESOURCE INVENTORY CLASSES. Class I — library, archival, and literature research with consultation to identify known cultural resources. Class II — a sampling field inventory of an area, systematically designed to provide a predictive model of the nature and distribution of the cultural resources in an area. Class III — an intensive field search of all surface-evident cultural resources in an entire area.

CULTURAL RESOURCES. Those fragile and nonrenewable remains of human activity, occupation, or endeavor, reflected in districts, sites, structures, buildings, objects, artifacts, ruins, works of art, architecture , and natural features that were of importance in past human events. These resources consist of 1) physical remains, 2) areas where signficant human events occurred, even though evidence of the event no longer remains, and 3) the environment immediately surrounding the actual resource.

CULTURAL RESOURCE SITE. A physical location of past human activities or events. Sites vary in size , ranging from the location of a single cultural resource object to a cluster of cultural resource structures with associated objects and features.

CUSTODIAL GRAZING MANAGEMENT. A limited form of rangeland management employed when the percentage of public land is small, when public land is scheduled to be transferred from public ownership , or when other conditions are not conducive to other management. Under custodial management, an allottee is not required to follow a specified grazing system. BLM licenses custodial allotments only for the capacity of the public land but does not control overall livestock numbers.

ECOLOGIC SUCCESSION. See Succession, Ecologic.

ECONOMIC MINERAL DEPOSIT. Any mineral deposit of sufficient quality and quantity to produce a profit when mined. See Subeconomic Mineral Deposit.

ECOSYSTEM. A complex self-sustaining natural system, which includes living and nonliving components of the environment and the interactions that bind them together. Its functioning involves the circulation of matter and energy between organisms and their environment.

ENDANGERED ANIMAL SPECIES. Any animal species in danger of extinction throughout all or a significant portion of its range. This definition excludes species of insects that the Secretary of the Interior determines to be pests and whose protection under the Endangered Species Act would present an overwhelming and overriding human risk.

GLOSSARY

ENDANGERED PLANT SPECIES. Species of plants in danger of extinction throughout all or a significant portion of their ranges. Existence may be endangered because of the destruction, drastic change, or severe curtailment of habitat, or because of over-exploitation, disease, predation, or unknown reasons. Plant taxa from highly limited areas, such as the type localities only, or from restricted fragile habitats are usually considered endangered. See Threatened Plant Species.

ENVIRONMENT. The surrounding conditions, influences, or forces that affect or modify an organism or an ecological community and ultimately determine its form and survival.

ENVIRONMENTAL ASSESSMENT (EA). The procedure for analyzing the impacts of some proposed action on a given environment and the documentation of the analysis. An EA is similar to an environmental impact statement (EIS) but is generally smaller in scope. An EA may be preliminary to an EIS.

ENVIRONMENTAL IMPACT STATEMENT (EIS). An analytical document developed for use by decisionmakers to weigh the environmental consequences of a potential decision. An EIS should accurately portray potential impacts on the human environment of a particular course of action and its possible alternatives.

EXCLOSURE. A small area set aside and protected from grazing either to preserve representative areas in excellent range condition or to allow succession on depleted rangeland without grazing (Rangeland Reference Area Committee, 1975).

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA). Public law 94-579, which gives BLM the legal authority to establish public land policy; to establish guidelines for administering such policy; and to provide for the management, protection, development, and enhancement of the public lands.

FORM. One of the four basic elements of visual resources, form is generally considered to be the mass or shape of an object. It is most strongly expressed in the shape of the land surface. Form is usually the result of erosion, but it may also be reflected in the shape of the openings or changes in vegetation or in the structures on the landscape. See Color, Line, and Texture.

FOSSIL. Any remains, trace, or imprint of an ancient plant or animal that has been preserved by natural processes.

GRANDFATHERED USE. A mineral, grazing, or right-of-way use that occurred on the land on the date of approval of the Federal Land Policy and Management Act (FLPMA) (October 21, 1976). Under BLM's Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM, 1979), grandfathered uses may continue on lands under wilderness review in the same manner and degree as on the date of FLPMA's approval, even if such uses impair wilderness suitability. These uses, however, must be regulated to ensure that they do not unnecessarily degrade these lands.

GRAZING SYSTEM. The manipulation of livestock grazing to accomplish desired results (Range Term Glossary Committee, 1974).

HABITAT. A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

HISTORIC RESOURCES. Cultural resources that date after the arrival of Europeans in the Southwest (about A.D. 1700 to the present).

IMPROVE GRAZING MANAGEMENT. A form of grazing management for rangeland in unsatisfactory condition, with production potential higher than present levels, with resource-use conflicts, or with unsatisfactory management. BLM intensively monitors the range to detect the results of improve grazing management, and allotment management plans are implemented.

INHOLDING. A parcel of state or private land surrounded by a wilderness study area.

INTERIM MANAGEMENT POLICY (IMP). BLM's guidelines for managing lands under wilderness review so as not to impair their suitability for preservation as wilderness. The IMP will apply to these lands until Congress determines whether or not they are to be wilderness.

KEY AREAS (CULTURAL RESOURCES). Areas that contain or are believed to contain significant cultural resources and are therefore sensitive to land use actions.

LAND TENURE PLAN. A plan developed by BLM to show the potential for blocking up land ownership for better management and control.

LEACHING. Extracting a soluble metallic compound from an ore by selectively dissolving it in a suitable solvent, such as water, sulfuric acid, or hydrochloric acid.

LINE. One of the four basic elements of visual resources, line in the natural landscape is usually the result of an abrupt contrast in form, texture, or color. Lines may be found as ridges, skylines, structures; as changes in vegetation types, or as individual trees or branches. See Color, Form, and Texture.

LINE CABIN. A cabin, shack, or other structure temporarily used as shelter by livestock operators and their help while looking after their livestock on the range.

LITHIC SITE. An archaeological site containing stone tools or debris left from the manufacture, use, or maintenance of flaked stone tools.

LOCATABLE MINERAL. Any mineral that can have a mining claim filed on it under the Mining Law of 1872 as amended.

LOCATION. The act of fixing the boundaries of a mining claim according to law.

MAGNETIC ANOMALY. A magnetic reading either higher or lower than would be expected for an area. A high anomaly could indicate the presence of high concentrations of iron and associated minerals, and a low reading could indicate the replacement of iron by another mineral. In either case, a magnetic anomaly can suggest mineral potential.

MAINTAIN GRAZING MANAGEMENT. A form of grazing management for rangeland already in satisfactory condition that provides for no special programs or change in existing management. Under maintained management, BLM monitors the range to detect undesirable conditions, and allotment management plans can be implemented if desired.

MANAGEMENT FRAMEWORK PLAN (MFP). A land use plan for public lands that provides a set of goals, objectives, and constraints for a specific planning area to guide the development of detailed plans for the management of each resource.

MANAGEMENT SITUATION ANALYSIS (MSA). A step in the BLM planning process that identifies existing management, physical resources, and opportunities to meet the needs, concerns, and issues identified through resource management planning. The

GLOSSARY

MSA results in a reference document, also referred to as an MSA, which is kept in the resource area office. The MSA document is open for public inspection but is not distributed to the public.

MINERALIZATION. The processes taking place in the earth's crust resulting in the formation of valuable minerals or ore bodies; the occurrence of potentially valuable minerals.

MINERALIZED AREA. An area that has exposures or near-surface deposits of potentially valuable minerals.

MINING DISTRICT. A section of country usually designated by name, which has described or understood boundaries within which minerals are found and which is worked under rules and regulations prescribed by the miners within the district.

MOGOLLON CULTURE. A prehistoric culture in westcentral and southwest New Mexico and eastcentral and southeast Arizona that was largely contemporaneous with the Anasazi and Hohokam (300 B.C. - A.D. 1200) and shared some traits with both cultures, particularly the Anasazi. The Mogollon economy was to a great extent based on agriculture and the gathering of wild plant foods.

NATIONAL HISTORIC PRESERVATION ACT (NHPA). The primary federal law providing for the protection and preservation of our cultural resources. Making it a national policy to preserve our cultural heritage, NHPA established the National Register of Historic Places, the Advisory Council on Historic Preservation, and State Historic Preservation Officers.

NATIONAL REGISTER OF HISTORIC PLACES (NRHP). A list of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture maintained by the Secretary of the Interior.

NATIONAL REGISTER QUALITY SITE. A cultural resource site determined to be eligible for nomination to the National Register of Historic Places by virtue of its local, state, or national significance.

NATURAL AREA. Lands managed for retention of their typical or unusual plant or animal types, associations, or other biotic phenomena; or their outstanding scenic, geologic, soil, or aquatic features or processes.

NATURALNESS. Quality of generally appearing to have been affected primarily by the forces of nature, with human influence largely unnoticeable.

NONATTAINMENT AREA (AIR QUALITY). An area where the national ambient air quality standards are violated for a given pollutant. An area may be classed as nonattainment for one pollutant and as attainment for another.

OFF-ROAD VEHICLE (ORV). Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland or other natural terrain, excluding (a) any registered motorboat, (b) any fire, military, emergency, or law enforcement vehicle when used for emergencies and any combat or combat support vehicle when used for national defense, and (c) any vehicle whose use is expressly authorized by the respective agency head under a permit, lease, license, or contract.

ORE. A mineral deposit of high enough quality to be mined at a profit.

OUTSTANDING. Standing out among others of its kind; conspicuous, prominent, or superior to others of its kind; distinguished; excellent.

OUTSTANDING NATURAL AREAS. Natural areas established to preserve scenic values and areas of natural wonder.

OVERBURDEN. The earth and rock lying in a natural state above mineral deposits before excavation.

OVERTHRUST BELT (ZONE). An extensive zone in western North America (believed to extend from Canada to Mexico) where an overthrust fault has forced older rocks on top of younger rocks. The discovery of oil and gas in the younger rock layers has aroused much interest in exploration throughout the belt, including Arizona.

PALEONTOLOGY. The science that deals with the life of past geologic ages. It is based on the study of the fossil remains of organisms and in a restricted sense is the study of fossils.

PALEONTOLOGICAL RESOURCES. Fossils; the remains of animals and plants that provide information about life in past geologic ages.

PERENNIAL STREAM. A stream that flows throughout the year.

PLACER DEPOSIT. An alluvial or glacial deposit, as of sand or gravel, containing particles of gold or other valuable minerals.

PLIOCENE. The geologic epoch at the end of the Tertiary period, which lasted from 12 million to 1 million years ago.

PREHISTORIC RESOURCES. Cultural resources that predate the arrival of Europeans in the Southwest (about A.D. 1700).

PRIMITIVE AND UNCONFINED RECREATION. Nonmotorized, nondeveloped types of outdoor recreation, which can be dispersed and do not require facilities. Some examples are hiking, backpacking, fishing, hunting, spelunking, horseback riding, rock climbing, river running, cross-country skiing, snowshoeing, canoeing, photography, and nature study.

PROSPECT. An attempt to determine mineral values or the site of this attempt.

PUBLIC LAND. Federal lands administered by the Bureau of Land Management.

RANGE (RANGELAND). Land dominated by vegetation that can be grazed or browsed and whose husbandry is provided routinely through grazing management instead of renovation or cultural treatment (Range Term Glossary Committee, 1974).

RANGE CONDITION. The current productivity of a range relative to what that range is naturally capable of producing (Range Term Glossary Committee, 1974).

RANGE TREND. The direction of change in range condition (Range Term Glossary Committee, 1974).

RAPTOR. A bird of prey.

RECREATION VISITOR DAY. Twelve visitor hours, which may be aggregated continuously, intermittently, or simultaneously by one or more people.

RESEARCH NATURAL AREA. A natural area established and maintained for research and education, which may include: 1) typical or unusual plant or animal types, or associations or other biotic phenomena, or 2) characteristic or outstanding geologic, soil, or aquatic features or processes. The public may be excluded or restricted from such areas to protect studies.

GLOSSARY

RESOURCE AREA. The smallest administrative subdivision of a BLM district.

REST-ROTATION GRAZING. A grazing system in which one part of the range is ungrazed for an entire year or longer, while other parts are grazed for a portion or all of a growing season.

RIPARIAN. Situated on or pertaining to the bank of a river, stream, or other body of water. The term riparian is normally used to refer to the plants of all types that grow along streams or around springs.

ROADLESS. The absence of roads that have been improved and maintained by mechanical means to ensure relatively regular and continuous use. A way maintained solely by the passage of vehicles does not constitute a road. See vehicle way.

ROCK SCRAMBLING. Climbing up, down, and over rocks without the use of ropes or other special equipment.

SALADO CULTURE. A prehistoric culture that probably originated in the Tonto Basin of Arizona and spread throughout southeast Arizona from about 1200 to 1450 A.D. The Salado economy was based on agriculture.

SCOPING. An early and open process for determining the scope of issues to be addressed in an EIS and for identifying the significant issues related to a proposed action. Scoping may involve public meetings, field interviews with representatives of agencies and interest groups, discussions with resource specialists and managers, and written comments in response to news releases, direct mailings, and articles about the proposed action and scoping meetings.

SECTION. A 1-square mile area forming one of the 36 subdivisions of a township.

SENSITIVE ANIMAL SPECIES. Animals whose populations are consistently small and widely dispersed, or whose ranges are restricted to a few localities, such that any appreciable reductions in numbers or habitat might lead toward extinction.

SHERD. A fragment of a pottery vessel.

SLICKROCK CATCHMENT. See Catchment.

SOLITUDE. The state of being alone or remote from habitations; isolation.

SPECIAL FEATURES. Resources that are not required for an area to be designated wilderness but that are considered in assessing the wilderness potential of an area. Such values include ecologic, geologic, and other features of scientific, educational, scenic, or historic value.

STANDARD METROPOLITAN STATISTICAL AREA (SMSA). A county that contains at least one city of 50,000 residents or more and as many adjacent counties as are metropolitan in character and are socially integrated with that central city or cities.

STRATEGIC MINERALS. Minerals essential to the national defense, for the supply of which the United States is wholly or in part dependent upon sources outside its continental limits and for which strict measures are needed to control conservation and distribution. See Critical Minerals.

SUBECONOMIC MINERAL DEPOSIT. A known mineral deposit of sufficient quantity but insufficient quality to be mined at a profit under present conditions. See Economic Mineral Deposit.

SUCCESSION, ECOLOGIC. The process of one plant community being replaced by another until a climax community is reached.

TAXA. Categories in the classification of plants and animals.

TEMPERATURE (GEOTHERMAL) GRADIENT. The rate at which temperatures increase with depth below the earth's surface. For example, a temperature gradient of 164°C/km means that 1 km below the earth's surface the temperature is 164° C higher than at the surface. Under a temperature gradient of 164° C/km, for every 20 feet in depth, temperatures increase by 1°C or 1.8°F.

TEXTURE. One of the four basic elements of visual resources, texture is the result of the size, shape, and placement of parts; their uniformity; and the distance from which they are observed. As perceived in the landscape, texture is usually the result of vegetation patterns but may also result from erosion patterns in rocks or soil. See Line, Form, and Color.

THREATENED ANIMAL SPECIES. Any animal species likely to become endangered within the foreseeable future throughout all or a significant part of its range. See Endangered Animal Species and Sensitive Animal Species.

THREATENED PLANT SPECIES. Species of plants that are likely to become endangered within the foreseeable future throughout all or a significant portion of their ranges, including species classed as rare, very rare, or depleted. See Endangered Plant Species.

UTILIZATION (FORAGE). The proportion of the current year's forage consumed or destroyed by grazing animals.

VEGETATION TYPE. A plant community with distinguishable characteristics described by the dominant vegetation present.

VEHICLE WAY. A vehicle route established and maintained solely by the passage of motor vehicles.

VISUAL RESOURCE MANAGEMENT (VRM) CLASSES. Classification containing specific objectives for maintaining or enhancing visual resources, including the kinds of structures and modifications acceptable to meet established visual goals.

VOLCANIC PLUG (NECK). The solidified rock filling a vent or pipe of a dead volcano. Volcanic plugs often become prominent landscape features after the softer surrounding material has eroded away.

WATERSHED. The region draining into a river, river system, or body of water.

WAY. See Vehicle Way.

WILD AND SCENIC RIVERS SYSTEM. A system established by the Wild and Scenic Rivers Act (Public Law 90-542) of protecting rivers and their immediate environments that have outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values. Rivers studied for these values can be designated in one of three classes:

(1) *Wild Rivers* — free of impoundments and pollution and generally inaccessible except by trail, with essentially primitive watersheds or shorelines.

(2) *Scenic Rivers* — free of impoundments, shorelines largely undeveloped, but accessible in places by roads.

(3) *Recreational Rivers* — readily accessible by road or railroad, may have some development along shorelines, and may have undergone some impoundment or diversion in the past.

GLOSSARY

WILDERNESS. An uncultivated, uninhabited, and usually roadless area set aside for preservation of natural conditions. According to Section 2(c) of the Wilderness Act of 1964, "A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the force of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value."

WILDERNESS AREA. An area formally designated by Congress as part of the National Wilderness Preservation System.

WILDERNESS STUDY AREA (WSA). A roadless area or island that has been inventoried and found to have wilderness characteristics as described in section 603 of the Federal Land Policy and Management Act and section 2(c) of the Wilderness Act of 1964.

WILDLIFE WATERS. Artificial sources of water for wildlife, including a variety of projects such as catchments, masonry dams with storage tanks and drinkers, and spring developments. Water for wildlife may even be piped off existing livestock storage tanks.

WITHDRAWAL. An action that restricts the use of public lands and segregates the lands from the operation of all or some of the public land or mineral laws.

YEARLONG GRAZING. Continuous grazing for a 12-month period or for a calendar year.

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ARIZONA STRIP DISTRICT

ARIZONA SIBIP WSA EIS AREA

SHIVWITS RA

KINGMAN RA

PHOENIX DISTRICT

HAVASU RA

UPPER SONORAN EIS AREA

LOWER GILA RA

YUMA DISTRICT

YUMA RA

PHOENIX RA

GILA RA

SAFFORD DISTRICT

SAN SIMON RA

SAFFORD DISTRICT WILDERNESS EIS AREA

PHOENIX DISTRICT

LEGEND

	BLM	USFS	NPS	FWS
Designated Wilderness	NONE			NONE
Administratively Endorsed as Suitable (Prior to 1981)	NONE		NONE	
Further Planning or Study			NONE	NONE
Other Agency Lands				

BLM Wilderness Inventory Not Completed — NONE

BLM Lands Administratively Endorsed as Nonsuitable — NONE

BLM Lands Under Appeal (WSA's)

USFS Rare II Under Litigation (California) — NONE

State Designated Wilderness — NONE

Indian Reservations

Military Reservations

BLM Non WSA's Under Appeal

NAVAJO INDIAN RESERVATION

PAIUTE PA

TURBINELLA-GAMBEL OAK NA

BIG SAGE NA

VERMILION CLIFFS NA

PARIA CANYON PA

PETRIFIED FOREST WILDERNESS

SYCAMORE CANYON WILDERNESS

PINE MTN WILDERNESS

MAZATZAL WILDERNESS

SIERRA ANCHA WILDERNESS

MT BALDY WILDERNESS

SUPERSTITION WILDERNESS

ARAVAIPA CANYON PA

GALIURO WILDERNESS

PUSH RIDGE WILDERNESS

SAGUARO WILDERNESS

CHIRICAHUA WILDERNESS

WILCOX BOMBING RANGE

ELECTRONIC PROVING GROUND

FORT HUACHUCA

HAVASU NWR

YUMA TEST STATION

LUKE AIR FORCE RANGE

BARRY M. GOLDWATER AIR FORCE RANGE

ORGAN PIPE WILDERNESS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

STATE OF ARIZONA

WILDERNESS STATUS MAP

JUNE-1981

Scale 1:1,000,000

BASE MAP BY U.S. GEOLOGICAL SURVEY

PLATE 1

Legend

- State capital
- County seat
- City, town, or village
- Scheduled service airport
- Built up area shown for towns over 5,000 population

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